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REGIONAL DEVELOPMENT

LAGGING AGROCHEMICAL SERVICE IN NONCHERNOZEM ZONE

Moscow PRAVDA in Russian 14 Dec 81 p 1

[Article: "For the Fields in the Nonchernozem Zone"]

[Text] The nonchernozem zone of the RSFSR has become a kray of great changes. The renovation of the countryside is being carried out here at an increasing tempo and the production base of agriculture is being strengthened. These factors will make it possible for this vast region to make a greater contribution towards implementing the country's food program.

The decisions handed down during the 26th CPSU Congress outline a further program for developing the nonchernozem zone. Special importance is attached to raising the fertility of the land. Indeed, there are more than 30 million hectares of arable land here alone and large areas of haying and pasture land. The effectiveness of kolkhoz and sovkhoz operations will depend upon the size of the yields obtained from these lands.

Much is being done to strengthen the logistical base for farming in the nonchernozem zone. During the Tenth Five-Year Plan, the deliveries of mineral fertilizers here exceeded by one third the level for the preceding five-year period. More than 1.3 million hectares of drained and irrigated land were placed in operation during this period. The problem is one of taking full advantage of all available opportunities.

The collectives of many farms are proceeding in this manner. With each passing year, the workers in Domodedovskiy Rayon in Moscow Oblast are further improving the fertility of their fields. During the past decade, the culture of farming was raised here, seed production operations were improved and the use of organic fertilizers was increased by almost twofold: they are presently being applied at the rate of 15 tons per hectare of arable land. As a result of concern for their land, the farms raised the cropping power of their grain crops to 37 quintals, vegetables -- to 550 and potatoes -- to 160 quintals. The workers in Leningrad Oblast, the Komi ASSR and other regions are striving to realize more fully the yield potential of their fields.

However, there are still many who have yet to learn how to operate their land in a thrifty manner and multiply its strength. Thus, in Ryazanskaya, Permskaya and Sverdlovskaya Oblasts, owing to insufficient attention being given to the procurement of local fertilizers, an average of only 3-4 tons of organic materials has been applied to a hectare of arable land. For this same reason, the farms in Kaluzhskaya Oblast have curtailed their use of organic fertilizer. There have been frequent instances of mineral fertilizer being lost during storage or while being delivered to the fields. All of these factors are delaying improvements in the productivity of the land. The cropping power of grain and some other crops in a number of oblasts is not only not increasing but in fact it is even decreasing.

The interests of the work require that the party, soviet and agricultural organs devote constant attention to the intensification of field crop husbandry and to ensuring that guaranteed yields are obtained every year and that agricultural operations are adapted to the climatic adversities. "This assumes" commented Comrade L.I. Brezhnev during the November (1981) Plenum of the CC CPSU, "the introduction of crops and agrotechnical methods which will produce good yields both during a deficit and an excess of moisture. Finally, it assumes the production and best use of the proper equipment. All of these factors, in addition to the development of land reclamation and more efficient use of the increasing amounts of fertilizer, will help to weaken the dependence of agriculture upon the weather."

Measures aimed at improving agrochemical services in the rural areas must play an important role in raising the efficiency of field crop husbandry operations. The subunits of Rossel'khozkhimiya must address themselves first and foremost to the interests of the kolkhozes and sovkhozes and their work must be evaluated from the standpoint of the final results. The forms for collaboration between the farms and agrochemists in a number of rayons in Kirovskaya, Gor'kovskaya and Novgorodskaya Oblasts are consistently being improved. In accordance with an agreement with the sovkhozes and kolkhozes, specific fields are assigned to Rossel'khozkhimiya associations for a number of years, for the purpose of carrying out a complete complex of measures aimed at achieving a high level of soil fertility. The agrochemists guarantee that the yields called for in the agreements will be achieved. The party organizations must promote the extensive use of progressive methods for providing agrochemical services for the farms and raise the responsibility of the rural partners for the intensive use of the land.

The region's base for the use of chemical processes requires further strengthening. In order to ensure complete preservation of the mineral fertilizers, a large number of storehouses should be erected for them. However, this work is often carried out at a low rate of speed. Thus, subunits of Mintransstroy [USSR Ministry of Transportation Construction], Minstroy [Ministry of Construction], USSR Minpromstroy [Ministry of Industrial Construction] and the RSFSR Ministry of Rural Construction have tolerated delays in the construction of 17 large installations.

The farmers in the nonchernozem zone are awaiting more efficient assistance from the collectives of industrial collectives responsible for supplying the kolkhozes and sovkhozes with the materials required. Thus today growth in the return being realized from land is being delayed to a considerable degree by a high level of acidity in many fields. Such fields require lime applications. Meanwhile, during 11 months of this current year, the enterprises of Minstroymaterialy [Ministry of the Industry of Construction Materials] for the USSR and RSFSR, the ministries of ferrous metallurgy and the chemical industry and other suppliers undersupplied the rural areas by more than 4 million tons of lime. Nor is this the first year that such a situation has developed. The leaders and party committees of ministries and departments must undertake the measures required for increasing the production of this material and ensuring fulfillment of the orders received from the rural areas.

The machine builders must devote greater attention to the requirements of the field crop growers. Special equipment groups are required in order to raise the productive power of a hectare in keeping with modern requirements. In particular, equipment is required for the shops and sites engaged in the preparation of compost. But for all practical purposes, no such equipment is being produced. Just as in the past, industry continues to produce low-powered fertilizer spreaders and loaders and no anti-corrosive type machines are available. These problems are disturbing not only to the farmers in the nonchernozem zone, but to all agricultural workers throughout the country as a whole.

One of the chief concerns of the party organizations in the nonchernozem zone is that of concern for growth in the return being realized from the land. At the present time, with preparations going forward for the impending spring period, maximum attention should be given to those measures aimed at establishing a reliable foundation for the future harvest. In those areas where fertility detachments have not yet been formed, they should be staffed in a rapid manner and provided with all of the conditions required for highly productive work. Importance is attached in all areas to organizing training for the machine operators and repairing the equipment and processing the seed in a timely manner.

The nonchernozem zone land will respond to the concern shown for it. The responsibility of the farmers lies in making this land truly generous and making a worthy contribution towards carrying out the decisions handed down during the 26th party congress and the November (1981) Plenum of the CC CPSU.

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SUBSIDIARY ENTERPRISES OF USSR FOOD INDUSTRY REVIEWED

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 11, Nov 81 pp 57-62

[Article by Aleksandr Timofeyevich Makarov, Deputy Minister of USSR Food Industry: "The Agrarian Shop of Industrial Enterprises"]

[Text] Of major importance in satisfying the constantly growing demand of the nation for foodstuffs and raw materials for industry is, along with the development of agricultural production by kolkhozes and sovkhozes, the complete exploitation of the potential of industrial enterprises and private land plots owned by blue- and white-collar workers and other citizens for the production of meat, milk, eggs, vegetables, fruits, and other produce.

The important role of the subsidiary farms of industrial enterprises was stressed at the July (1978) Plenum of the CPSU Central Committee. In that same year the CPSU Central Committee and the USSR Council of Ministers issued the Decree "On Subsidiary Farms of Enterprises, Organizations, and Institutions" which provides for a variety of measures to further develop these agrarian shops of enterprises. In particular, enterprises are provided with land plots for the organization of subsidiary farms. The appropriate agricultural agencies are obligated to provide them with varietal seeds, planting materials, and young pedigreed livestock. A provision has been made for allotting tractors, harvesting combines, and mineral fertilizers to the subsidiary farms of enterprises, organizations, and institutions and for financing the construction of facilities needed to develop these farms by means of planned state capital investments, as well as for various other measures.

Industrial organizations, enterprises, and institutions may obtain loans for the organization and expansion of the material and technical facilities of their subsidiary farms for a period of 6 years from the day of granting the first loan. The loans are provided within the limits of the funds envisaged under the long-term lending plan of the USSR Stroybank and USSR Gosbank, in excess of the volume of state capital investments, in measure with the procurement of material resources by enterprises, organizations, and institutions, and upon recoupement of outlays within specified periods.

The report by the General Secretary of the CPSU Central Committee Comrade L. I. Brezhnev at the 26th Congress stressed that the subsidiary farms of industrial enterprises should be given every support. They can and should be of major assistance in increasing the production of meat, milk, and other products, in improving the food supply of blue- and white-collar workers.

Many ministries and other agencies administering the food industry in the Union republics are specifically working to develop the existing subsidiary farms and create new ones. Control over the performance of such farms has been streamlined. At many enterprises these farms operate as regular enterprise shops and their indicators are included in plant-wide plans. The material and technical facilities of these subsidiary farms are being expanded, their organization of labor is being improved, as is their agrozooveterinary servicing, and their output is increasing.

Early this year subsidiary farms and fattening stations have been set up under 1,122 enterprises of the USSR Ministry of Food Industry (compared with only 169 in 1978). In the course of the present year an additional 442 subsidiary farms have been set up. Over the 1979-1980 period the horned-cattle population on all such subsidiary farms has increased by a factor of nearly 9; hogs, threefold; and sheep, two and one-half times. In addition, the numbers of poultry on these farms have increased, apiaries for the collection of honey have been built, ponds and open-water bodies with an aggregate area of 1,315 hectares have been stocked with fish, and hothouses with an aggregate area of 55,700 m2 have been opened.

In 1980 the subsidiary farms of the USSR Ministry of Food Industry sold 65,900 quintals of meat, or nearly four times more than in 1978, and their production and sales of milk, egg, vegetables, and other produce also have increased. At the enterprises subordinate to this ministry which started to operate subsidiary farms the output per worker amounted to 21 kg of potatoes and vegetables, 3.8 kg fruits and berries, 14.5 kg of meat (in terms of slaughter weight of livestock sold), and 6 kg of milk.

On the subsidiary farms of the RSFSR Ministry of Food Industry in 1980 the output for each of 109,900 workers (at the enterprises with subsidiary farms) was: 14.3 kg of potatoes, 41.7 kg of vegetables, 8.3 kg of fruits and berries, 23.3 kg of meat (in terms of slaughter weight of livestock sold), 20 kg of milk, and 0.12 kg of honey.

Positive experience in the work to establish and develop subsidiary farms has been gained within various branches of the RSFSR and Ukrainian SSR ministries of food industry and at certain enterprises of the Uzbek and Kazakh SSR ministries of food industry. Many subsidiary farms are achieving commendable results, and not only those attached to the enterprises of the sugar, alcohol, and starch-and-molasses industries, for which the conditions are especially favorable.

Satisfactory results are being achieved by many subsidiary farms of enterprises at which their contribution to supplying enterprise personnel with food is growing each year.

The subsidiary farm of the ORS [Department of Workers' Supply] of the Bassol' Order of Lenin Combine has achieved the following figures for each of the 1,226 workers in 1980: 20.4 kg of meat (in terms of slaughter-weight livestock), 88.5 liters of milk, 4.5 kg of melons (at a time when drought ruined 100 hectares planted with melons, the normal harvest being 250-300 kg per worker). This subsidiary farm has completely adequate resources of livestock fodder of its own and reaches a high productivity despite drought conditions. For example, the milk yield per cow last year was 2,636 kg.

The subsidiary farm of the Aralsol' Combine of the Kazakh SSR Ministry of Food Industry, for example, sold the following for each of the combine's 900 workers in 1980: 13.2 kg of meat (slaughter-weight livestock), 17 kg of fish, 222 kg of milk, and 222 kg of vegetables and melons. Plans exist for tripling the production and sales of meat by the end of the 11th Five-Year Plan period while at the same time increasing the output of milk by a factor of 1.5 and the output of fish, by a factor of 2.

The subsidiary farm of the Uladovskiy Alcohol Plant in Vinnitskaya Oblast sold 46.7 kg of meat (in slaughter-weight terms) per plant worker.

On the initiative of the management of the Verkhnedneprovsk Starch and Molasses Combine imeni 60th Anniversary of the Great October Socialist Revolution, Ukrainian SSR Ministry of Food Industry, a subsidiary farm was set up with the object of improving the quality, broadening the variety, and reducing the cost of meals for blue- and white-collar workers in the plant canteen, in 1973. A hog pen with mechanized preparation and distribution of feed, a poultry farm, and a fattening station for 40 head of large horned cattle were built. The needed funds were taken from the amortization fund for capital repair and from the socio-cultural activities funds. Uncultivated lands adjoining the combine were used to grow vegetable and fodder crops and planted with fruit trees. Hothouse facilities were organized, utilizing the heat of the thermoelectric power station. Now fresh cucumbers, onions, and tomatoes are listed on the canteen menu even in winter. Equipment from the combine and from a neighboring sovkhoz is used to till the soil for planting vegetable crops.

The subsidiary farm employs 6 persons. They are paid regular salaries and bonuses from the non-industrial personnel fund. The combine was able to assign this number of persons to the farm owing to the higher labor productivity it achieved in its basic production. Weeding and fruit harvesting are done with the aid of schoolchildren--children of the combine's blue- and white-collar workers. They receive category-1 pay from wage-fund savings. The preparation of feeds during the fall-winter period is handled by volunteers from among the workers of the combine's shops.

During the 1975-1980 period 1,000 hogs and 231 bull-calves were fattened on the combine's subsidiary farm. In 1980 the cost per quintal of weight gain in hogs was 1.28 rubles and per quintal of weight gain in horned cattle, 1.17 rubles. Forty-one quintals of early vegetables were grown in the hothouse. Owing to the full and rational utilization of the land at the combine's disposal, the harvests of cabbage amounted to 13.7 tons; cucumbers, 3.2 tons; tomatoes, 5.2 tons; and fodder root crops, 25 tons.

It is planned to plant fruit trees on 2 hectares of slopes leading toward the storage pond, which will contribute not only to increasing the fruit harvest but also to improving environmental production and establishing a protective sanitary zone. The construction of a new hothouse is also being planned. This will make it possible to satisfy more fully the vegetable demand of the combine's canteen and of the preschool institutions in the winter.

Many enterprise managers have underestimated the fact that the establishment of subsidiary farms serves not only to accomplish its main task, that of providing an additional supply of foodstuffs, but also to provide appropriate recreation for workers, improve their health, and, which is especially important, accustom people--including teenagers--to labor and imbue them with love for their native land.

Virtually every food-industry enterprise may maintain its own subsidiary farm.

It is sometimes said that the subsidiary farms of industrial enterprises cannot, owing to their administrative jurisdiction, successfully compete with the farms of the USSR Ministry of Agriculture, considering that the principal task of food-industry workers is to process agricultural raw materials and produce foodstuffs and other products rather than raise piglets. And since that is so, why should these farms be provided with funds and resources that could be used more effectively if assigned to "real" sovkhozes? Such reasoning may be answered as follows: so long as there is a shortage of certain types of agricultural production in this country, every possible means of increasing that production should be utilized.

The agencies administering the food industry expect to make the following outlays on the development of the subsidiary farms of its enterprises, organizations, and institutions during the 11th Five-Year Plan period: 46.3 million rubles in capital investments, USSR Stroybank and USSR Gosbank loans, and enterprise activities. Of that 46.3 million rubles the RSFSR Ministry of Food Industry alone will spend 19.8 million, and the Ukrainian SSR Ministry of Food Industry, 13.4 million.

To foster the initiative of the collectives of enterprises, organizations, and institutions in developing subsidiary farms, increasing their agricultural output, and introducing progressive farming techniques, the USSR Ministry of Food Industry and the Central Committee of the Trade Union of Food Industry Workers annually organize the All-Union Inspection Contest Among Subsidiary Farms "For a model farm, increase in agricultural production, and improved supply of foodstuffs to the blue and white-collar workers of the USSR food industry."

Much has been done to organize the subsidiary farms of industrial enterprises. On the whole, however, these farms are as yet of low capacity and their share in the nation's agricultural output is not so large as to satisfy completely the growing demand of workers for animal-husbandry products. The potential for developing these farms and increasing their production is substantial and should be more fully exploited.

Sugar plants and sugar beet reception stations maintain pit fields, filtration fields, and processing ponds. All this land is used directly for its intended purposes only for two or three months each year, and in the late autumn at that. During the remainder of the year this land lies unused. It could be used to grow fodder and vegetable crops, and the ponds could be stocked with fish. Many sugar plants are now exploiting this potential. In the last two years the area of cultivated pit and filtration fields and clamp areas has exceeded 1,000 hectares. The surface area of open-water bodies being stocked with fish on sugar-plant lands has also increased, reaching 1,315 hectares in 1980 (compared with 485 in 1979).

An adverse factor in the development of the subsidiary farms of industrial enterprises has been the scarcity of land for establishing these farms. The Sverdlovsk Fats Combine was allotted 400 hectares of land from the forestry fund, but that land is 200 km distant from the combine and there are no connecting roads. Calculations show that 10 million rubles is needed to colonize that land. A small enterprise cannot afford such expenses. That is why many industrial enterprises decline such land allotments.

It is difficult but not impossible to find usable land plots for every enterprise. And in this case internal potential can be exploited.

For example, the Kalinin Production Association of the Beer and Nonalcoholic Beverages Industry of the RSFSR Ministry of Food Industry was allocated 45 hectares of land not far from the city of Kalinin in 1980. This year the association's personnel grew fodder crops, vegetables, and potatoes on that land. On using the wastes of its own production to feed cattle, in 1980 the subsidiary farm of this association produced 29.4 tons of meat (in terms of slaughter weight), that is, 47.4 kg per worker at the association. The level of profitability of meat production was 31.6 percent, and the profits from the sales of that production reached 18,000 rubles.

Currently hog pens (a sow pen and a fattening pen) are being built on that farm and a hothouse (measuring 2,000 sq m in surface area) and a pond are being planned.

The workers at the association's main plant number on the average 620 persons. The planned output of foodstuffs for each of these workers at the subsidiary farm is: 56 kg of meat, 30 liters of milk, 200 kg of vegetables, 300 kg of potatoes, and 40 kg of fresh fish. These quantities of foodstuffs will suffice for a complete supply of the plant canteen as well as of the families of the association's blue- and white-collar workers.

The management and the plant trade-union committee place priority on making the subsidiary farm operate on a cost-effective basis. This will serve to exploit the latent potential for increasing labor productivity, reducing production cost, increasing the crop harvests, and raising the farm's profits.

The subsidiary farm of the Yaltushkovskiy Sugar Plant in Vinnitskaya Oblast was started early in 1979, without allotting new land to that plant. Fifty hectares of land used by this plant for technological purposes were colonized; fruit trees were planted on an area of 25 hectares. This land is used to grow fodder, vegetables, and fruits. In addition, in their leisure hours, the plant's personnel prepare green silage from motley grass on road-sides, in forest belts, and in gullies. They then deliver it to a combined-fodder plant for processing into grass meal. In return, the subsidiary farm is supplied with combined fodder (22 tons in 1979 and 26 in 1980).

The equipment used for field work there was assigned to the sugar plant for technological purposes. Tilled crops (potatoes, cabbage, cucumbers, tomatoes, sugar beets, carrots, marrow-type pumpkins) are grown by the plant's workers pursuant to a provision in the collective bargaining agreement.

Last year this subsidiary farm transmitted 27.5 tons of potatoes, 26 tons of fruits and berries, and 15 tons of meat for public feeding, to preschool institutions. That is, the sales of these produce averaged 50.3, 47.5, and 27.4 kg, respectively, per plant worker. Good results were achieved in raising and fattening livestock. The average daily weight gain per head of large horned cattle was 887 grams, and per hog, 443 grams. The production cost per quintal of weight gain was 127 and 134 rubles, respectively, for these types of livestock.

Within the subsidiary farm, ponds aggregating 15 hectares in area were cleaned and stocked with fish. Plans exist to install an apiary and build premises for raising rabbits.

This example is not an exception. Steady and high indicators are being attained by the collectives of the subsidiary farms of the Kokanda Order of Labor Red Banner Meat and Fats Combine imeni M. I. Kalinin in the Uzbek SSR, the Beslanskiy Order of Labor Red Banner Meat Combine in the Severo-Osetinskaya ASSR, and various others.

In our opinion, one advantage of the subsidiary farms of industrial enterprises is that they can utilize the manpower resources of these enterprises and, the more so, their considerable technological and engineering potential. Thus, in the fall of last year the Tbilisi Fats Combine received blueprints for the construction of a hog raising farm at an estimated cost of 376,000 rubles. The farm was built by the combine's own personnel, and its construction was completed already early last June at a cost only half as high as the estimated cost. Now the construction of an incubator house and a poultry house for raising broilers is under way. In addition, fish-growing ponds were prepared with minimum outlays. It is noteworthy that all the farming processes there are mechanized and automated. The combine's engineers and technicians undertook to assure a smooth operation of the automated and other machinery.

The economic expediency of establishing the subsidiary farms of industrial enterprises consists in the fact that such farms serve to mobilize for the production process those material and manpower resources of society that cannot be utilized at large agricultural enterprises. Such farms utilize chiefly wastelands or neglected lands that are not used by the kolkhozes and sovkhozes, as well as lands allotted to enterprises for further development. They maximally utilize garbage from mass feeding establishments as well as the wastes of food-industry enterprises.

These subsidiary farms utilize spent steam and other "waste" heat to heat their hothouses. They also utilize worn and restored equipment of their mother enterprises as well as the by-products of the main production of their mother enterprises.

The resources available to industrial enterprises make it possible to reduce capital investments in such farms and to produce agricultural output at a fraction of the production cost of the kolkhozes and sovkhozes. For this very reason, the outlays on the organization of subsidiary farms are fairly rapidly recouped.

Moreover, subsidiary farms serve to mobilize yet another type of potential--manpower. Pensioners who no longer feel strong enough to work in basic production willingly labor to harvest the crop whenever the subsidiary farm has an acute need for workhands. Schoolchildren, too, participate in seasonal operations.

Without a doubt, the latent potential of an enterprise's subsidiary farm should be maximally utilized. However, an increase in the scale of production also engenders certain problems. The main problem is that of material-technical supply and primarily the renovation of the machinery pool. Although subsidiary farms of enterprises are supposed to be supplied with machinery, equipment, and spare parts by the procedure established for the kolkhozes and sovkhozes, the enterprises of Goskomsel'khoztekhnika [State Committee for Supply of Production Equipment to Agriculture] are not very generous toward them.

The Decree of the CPSU Central Committee and the USSR Council of Ministers "On Subsidiary Farms of Enterprises, Organizations, and Institutions" specifies that the appropriate ministries should provide such farms with tractors, harvesting combines, and tractor trailers, that is with equipment for which they receive funds. But these funds are too low. For example, although there are as many as 1,122 subsidiary farms within the system of the USSR Ministry of Food Industry, for 1981 they have been allotted 47 tractors and just as many tractor trailers.

In his report to the 26th CPSU Congress, Comrade L. I. Brezhnev especially mentioned that the subsidiary farms of industrial enterprises should enjoy all-out support. Without a doubt, the local directive-issuing agencies are attempting to provide assistance to the enterprises. But it cannot be said that the matter progresses in accord with the needs of the time. Obsolete notions and traditions still color the attitude toward the subsidiary farms of the food industry enterprises. How can there be any reasonable explanation, e.g. for the fact that mineral fertilizers, tractor trailers, grain harvesters, and other agricultural equipment must be purchased by these farms at prices higher than those asked of the sovkhozes of the USSR Ministry of Agriculture? That price difference is 20-30 percent. This increases the cost and reduces the profitability of production. The same can be said of the procedure for compensating crop and livestock losses due to natural disasters. The kolkhozes and sovkhozes are reimbursed for such losses by the insurance agencies but the subsidiary farms are deprived of such insurance.

To assure a supply of livestock fodder the industrial enterprises are, as a rule, allotted lands of non-agricultural origin that require considerable capital investments, drafting projects for their colonization, and special equipment. So far the subdivisions of the USSR Ministry of Land Reclamation and Water Management have not been accepting assignments from industrial enterprises for land reclamation work. There are no plans for allotting special equipment to the enterprises, and it is unavailable.

Certain problems also beset the sales of the products of subsidiary farms. Production at some of these farms varies depending on the season of the year and often cannot be marketed. It would be more expedient to transmit part of the output to meat processing plants on specific terms and thereupon collect it in fresh or processed form from these plants as the need arises. Why is this not done? Apparently only owing to the novelty of the problem, the lack of such experience in the past. Contractual relations with the meat and processing industry could not only help preserve the entire output and broaden its variety but also, which is extremely expedient, dispense with the need to feed livestock longer than necessary and thus also save fodder. And this means additional tons of valuable products.

A most speedy solution of all these problems would contribute to increasing the output of agricultural products at the subsidiary farms of enterprises, organizations, and institutions.

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TAJIK PRIVATE PLOT PRODUCTION AS ADDITIONAL FOOD RESOURCE

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 11, Nov 81 pp 73-76

[Article by A. Eshboyev, candidate of economic sciences, docent of Dushanbe State Pedagogical Institute imeni T.G. Shevchenko: "Private Subsidiary Farms -- an Important Source of Augmenting Food Resources"]

[Text] The decisions concerning economic problems that have been adopted by the party and the Soviet government in recent years attach a great deal of significance to the implementation of the food program which is directed towards full satisfaction of the needs of the populace for food products. Private subsidiary farms of kolkhoz workers, other workers, employees and other citizens should play no small role in this. At the July (1978) Plenum of the CPSU Central Committee Comrade L. I. Brezhnev, when speaking about private subsidiary farms, described them as an important source for augmenting food resources. The CPSU policy regarding this issue was further concretized in the decree of the CPSU Central Committee and the USSR Council of Ministers, "On Additional Measures for Increasing the Production of Agricultural Products on the Private Subsidiary Farms of the Citizens."

All-around development of public agricultural production has been and still is the main direction in the development of the country's agriculture. The further improvement of public well-being depends on it to a decisive degree.

Still, under modern conditions the private subsidiary farms (LPKh) of the population are a significant additional source of agricultural and food products.

Thus as of 1 January 1981 the LPKh's of the population of the Tajik SSR had 51.5 percent of the large horned cattle kept on all categories of the farms, including 67.7 percent of the cows, they had 42.9 percent of the sheep and goats, and so forth.

At the present time the LPKh's of the republic's population produces a considerable part of the animal husbandry and crop growing products: more than 40 percent of all the meat that is produced on all categories of farms in the republic, more than 47 percent of the milk, more than 35 percent of the wool, 44 percent of the potatoes, 40 percent of the vegetables, 65 percent of the fruits, 40 percent of the grapes, and so forth.

According to data from budget investigations of the families of kolkhoz workers, income from KPKh's comprise more than 27 percent of the total income of the kolkhoz family in the Tajik SSR. Party, soviet and agricultural agencies of the republic are conducting a certain amount of work to stimulate an increase in the production of agricultural products on LPKH's of the population.

For example, beginning in 1978 the republic recommended to the kolkhozes that, when determining their regulations for the quantity of livestock the kolkhoz worker can own privately, they proceed from the following norms: one cow with offspring up to one year of age and one head of young large horned cattle up to two years of age; ten sheep and goats, not including offspring up to one year of age; one sow with offspring up to 3 months of age or two hogs on fattening; bee colonies, poultry, rabbits. For shepherds working in animal husbandry in distant pastures--one cow with offspring up to one year of age and one head of young large horned livestock up to two years of age, and also 15 sheep and goats, not including offspring up to one year of age. For shepherds that are working in animal husbandry in distant pastures and do not have a cow--20 sheep and goats, not including offspring up to one year of age.

The farms are permitted to grant credit to the kolkhoz workers for acquiring livestock: for acquiring cows--in the amount of up to 500 rubles, and for acquiring calves--in the amount of up to 250 rubles, with the credit to be repaid under the conditions stipulated for granting credit for the construction of buildings (as personal property).

In recent years the overwhelming majority of kolkhozes and sovkhozes in Kurgan-Tyubinskaya Oblast have been allotting tractors and trailor equipment for cultivating farmstead plots.

The number of head of livestock on the private subsidiary farms of the population of the oblast is increasing from year to year. The increase of the number of head of livestock that are the private property of the citizens is due largely to the increased sale of young animals to kolkhoz and sovkhoz workers by state organizations and public farms. Many farms of the oblast provide the livestock of the kolkhoz and sovkhoz workers with feed that they have produced themselves and allot sections of land for grazing and haying.

The experience of the Fakhrabod Sovkhoz in Kuybysheviskiy Rayon and the Kommunizm Kolkhoz in Vakhshskiy Rayon in Kurgan-Tyubinskaya Oblast deserves special attention: the volume of feeds for private livestock of the kolkhoz and sovkhoz workers is envisioned in the annual plans of these farms. Feed is produced through the entire year and delivered to them with sovkhoz and kolkhoz transportation. When allotting feeds they take into account the labor participation of the kolkhoz or sovkhoz worker in public production. Feed is delivered first for the private livestock of workers who have achieved high production indicators. Since 1979 this practice has been widely applied on other farms of the oblast as well.

The kolkhoz and sovkhoz workers receive practical assistance in the construction of animal husbandry facilities for their private subsidiary farms. In Shaartuzskiy and Yavanskiy rayons the construction of these facilities is envisioned in the plans for farmstead plots that are created on new land.

Artificial insemination of livestock for private use is becoming more and more widespread. The livestock of the kolkhoz and sovkhoz workers is under the constant supervision of the veterinary service.

As we said above, the LPKh's in Tajikistan produce a considerable proportion of the agricultural products. Nonetheless the possibilities of the LPkh are still not being sufficiently utilized. Most of the products of the LPKh's go for satisfying the needs of the producers themselves and their families; no more than 3 percent of the eggs, milk and meat produced on LPKh's go for state procurements in the republic. Under modern conditions a correct combination of public, collective and private interests is an important principle for successfully carrying out the socialist process of reproduction. One of the indicators of the combination of public, collective and private interests in agriculture is a correct combination of public agricultural and private subsidiary farms of the citizens.

For example, in Khodzhentskiy Rayon in Leninabadskaya Oblast the cooperating workers are successfully searching out an additional reserve for increasing the supply of meat for the population of villages and settlements: at the beginning of 1980 each of the workers of the rayon consumers' union living in rural areas was committed to fatten a male calf or ram on his LPKh and to sell it to the system of cooperative trade for subsequent sale to the population. This initiative was supported by kolkhoz workers and other residents of rural areas. As a result, 940 agreements were concluded, and in keeping with these agreements the consumers' union was committed to supply the LPKh's with mixed feeds. The results were not slow in manifesting themselves. It was possible to acquire fresh meat in the cooperative trade stores of all the large population points in the rayon. The menus in the dining rooms and restaurants became more diversified.

In 1980 the cooperating workers of Khodzhentskiy Rayon sold more than 100 tons of meat. The consumers' union organized reciprocal trade for those who fatten livestock and sell meat: they are given preference for purchasing rugs, motorcycles and other industrial goods that are in great demand.

On the sovkhoz imeni Kalinin in Leninskiy Rayon in the Tajik SSR, purchasing surplus meat from the population has become an important additional source for procuring this product. Additionally, they sell the sovkhoz young animals for fattening under contractual agreement. In turn, the directors allot feeds, grazing land and hay fields for the LPKh's.

The Pakhtakoron village soviet of peoples' deputies in Zafarobodskiy Rayon in Leninabadskaya Oblast in conjunction with the management of the 40 let Tajikistana Sovkhoz, is doing a large amount of work to encourage the operation of the LPKh's of the citizens. On the initiative of the deputies, the sovkhoz is accepting male calves for meat from the population. Moreover, 4 points for receiving milk from cows of LPKh's have been opened in the village of Pakhtakoron. Last year, with a plan for 6 tons of milk, the points sent 40 tons of milk to the Ura-Tyube city dairy. And the reserves are still not exhausted.

The deputies are concerned about improving the breeding of animals. For the better the livestock are bred, the higher the return on the labor that is expended, and therefore, in keeping with a petition from the deputies, a point for artificial insemination of livestock has been opened in the village. In turn, the city dairy has organized 12 receiving points in the villages and settlements for the surplus milk produced on the LPKh's. They are equipped with laboratories for determining the quality of the milk. Moreover, a special automated machine has been allotted--a milk transporter.

Residents of the settlements of Shakristan and Yangi-Kurgan are participating actively in the sale of milk. More than 400 kilograms of milk have been sold from each cow on a private farm here. Certain kolkhoz workers have sold 760-820 kilograms of milk each. Procurement organizations have also purchased a good deal of meat, wool, eggs, vegetables, and other agricultural products and leather material from the population.

The owner of an LPKh wants not only to satisfy his own personal needs for vegetables, fruits and grapes, but also to sell part of his yield on the city kolkhoz market or to turn it over for state procurements. But this is not always possible since the gardens and vineyards of the LPKh's frequently do not produce a harvest for years because of various diseases. Therefore the rural worker who owns such an LPKh must go to the city kolkhoz market for fruits and produce. This is why some rural residents take their surplus products to the city market while others bring them back to the rural areas. This kind of circulation occurs every year.

But what is the reason for this? Can it really be that the republic does not have the ways and means of protecting the farmstead plots from pests of agricultural plants or diseases? It has them. The republic Gossel'khoztekhnika has a division for plant protection which includes 34 specialized detachments for fighting against pests of agricultural plants. Its duty is to treat not only kolkhoz and sovkhoz fields, gardens and vineyards, but also those of farmstead plots. Unfortunately, the population is poorly informed about this service and therefore the settlements and villages rarely turn to these detachments. Yet the specialized detachments for fighting against agricultural pests are capable of handling all farmstead plots in the republic.

Let us touch on another aspect of this: the kolkhozes and sovkhozes annually spend a large amount of money for treating the fields, gardens and vineyards. Unfortunately, the return from this is not always great because the farmstead plots are frequently sources for the propagation of pests of agricultural plants. Thus the treatment of the fields and planted areas both of the public farms and of the private subsidiary farms can produce reciprocal advantage.

The activity of the rural soviet of Chuzi and the board of the Leningrad Kolkhoz in Gissarskiy Rayon regarding this issue is worthy of attention.

"The yield of fruits and berries from farmstead plots of kolkhoz workers is usually good," says the deputy chairman of the Leningrad Kolkhoz in Gissarskiy Rayon, I. Nusratov. And this is no accident. It shows the kolkhoz board's constant concern for the farmstead plots of our kolkhoz workers. Each year during the period when public gardens are treated with technical equipment and toxic chemicals, the plots of the rural residents are also treated. This year, for example, the kolkhoz board concluded with the republic scientific production association, Tajiksel'khozkhimiya, an agreement for the treatment of individual gardens and vineyards for

10,000 rubles. The kolkhoz also allots mineral fertilizers for private subsidiary farms of its kolkhoz workers.

On the territory of the settlement soviet of Chuzi, where the Leningrad Kolkhoz is located, there are 1,984 families of kolkhoz workers, other workers, employees and other citizens. They have 3,326 head of large horned cattle and 4,033 of small cattle. With rare exceptions, all the families have livestock. They always have plenty of forage. The kolkhoz workers who have difficulty with feeds turn to the board and receive help.

"We know," says I. Nusratov, "that after the decree of the CPSU Central Committee and the USSR Council of Ministers, 'On Additional Measures for Increasing Production of Agricultural Products on the Private Subsidiary Farms of the Citizens,' the quantity of livestock of the kolkhoz workers in increasing and therefore even now the kolkhoz board has adopted a decision to increase the areas for pastures and to utilize them more efficiently. We have non-irrigated land that is still not being utilized. In order to improve the grass stand on them, we are watering and fertilizing them. But this is not all. The kolkhoz has mulberry tree plantations. It has been decided to plant corn under the trees on these plantations, to mow it for green fodder, and to distribute it to the kolkhoz workers."

Guests in Tajikistan and the republic's residents too are frequently inspired by the beauty and wealth of our kolkhoz market. And their counters are never empty at any time of the year. But we shall not close our eyes to the fact that the cost of the vegetables, fruits and grapes at these markets is still high. This means that we are not producing an adequate quantity of these products. It therefore follows that it is necessary to assist the agricultural worker so that his farmstead plot is always "healthy" and produces a high return. This is required by the aforementioned decree of the CPSU Central Committee and the USSR Council of Ministers.

Questions of efficient utilization of private subsidiary farms are regularly considered at meetings of the State Committee of Peoples' Control of the Tajik SSR. Thus at one of the recent meetings the committee considered the results of an investigation of the condition of the LPKh's of the kolkhoz workers, other workers, employees and other citizens, and the situation in collective orchard and garden cultivation in Proletarskiy, Khodzhentskiy and Kanibadamskiy rayons of Leninabadskaya Oblast. Serious shortcomings were revealed.

From year to year the poultry farms and poultry sovkhozes of the oblast failed to fulfill their assignments for the sale of young poultry to the population. The assignment for the creation of artificial insemination points is being fulfilled unsatisfactorily.

Trade organizations of consumers' cooperation have not resolved the issue of the sale of mixed feeds to the population. Up to this point they have not earmarked stores or a policy for selling forage. Consumers' cooperation does not adequately deal with questions of providing the population with supplies and commodities that are necessary for their LPKh's.

A number of kolkhozes and sovkhozes of rayons where the investigation was conducted do not render assistance to the population in providing feeds for private livestock. Measures are not being taken to create and organize gardening communities or collective gardening.

Rural trade organizations are not sufficiently maneuverable in their work. Frequently there are interruptions in the delivery of garden and orchard supplies and in the sale of mineral fertilizers, toxic chemicals, polyethylene sheets, industrial rope, chicken wire and other goods that are necessary for LPKh's.

Certain farm managers are still not sufficiently concerned about increasing the number of head of livestock on the LPKh's of the citizens. Credit granted to the population by the state for the acquisition of cows and calves is not being adequately used. Kolkhoz loans for these purposes are poorly utilized. The main reason for this is the inadequate supply of feeds for the private livestock of the kolkhoz workers and other workers.

Mixed feeds are not always correctly sold by consumers' cooperation: in Kumsangirskiy Rayon, instead of allotting mixed feeds to the citizens that sell meat and milk to the state, they are released for open trade. Consumers' cooperation still does not fully provide for the purchase of surplus agricultural products from the population. In Yavanskiy and Kumsangirskiy rayons they have still not organized permanently operating receiving points. These rayons have no reciprocal sale of goods that are in increased demand for producers of animal husbandry products.

A new problem has now arisen: a kolkhoz or sovkhoz sells young animals to the population, takes back, as they say, its share of the meat, and frequently it does not return to the plan for the sale of prepared products. How does one motivate the kolkhoz or sovkhoz worker to return the fattened male calf to the kolkhoz and not to the market?

It seems that it is necessary for the kolkhozes and sovkhozes to conclude agreements with the owners of the livestock for the completion of the raising and the fattening of the animals. The farm should deliver feed to a person who has signed such an agreement at production cost, provide his livestock with veterinary services, and add 15-20 free days to his labor tenure. In turn, the owner of the livestock is committed to provide for the planned weight and state of nutrition by the time of the contractual sale of the animal. In these cases, in our opinion, the products should be sold at state procurement prices.

Under current production conditions, labor on the LPKh's, as a rule, is still manual and physically difficult, which has a negative effect on the way of life of the rural resident: fatigue increases and free time decreases. Therefore the question of minor mechanization becomes very critical. This has been extensively discussed on the pages of the central press.

A correct combination of public, collective and private interests, all-around improvement of the practice of material and moral stimulation for the labor of rural workers, and scientifically substantiated development of the entire system of public economic relations in rural areas constitute a guarantee of successful fulfillment of the decree of the party and government concerning additional measures for increasing the production of agricultural products on the private subsidiary farms of the citizens.

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PRIVATE SECTOR SUPPORT VALUED

Meat, Dairy Contribution Advanced

Moscow ZAKUPKI SEL'SKOKHOZYAYSTVENNYKH PRODUKTOV in Russian No 10, Oct 81 pp 13-15

[Article by I. Mishchenko, chairman of the ispolkom of the Zolotonoshskiy Rayon Soviet of People's Deputies: "Make Fuller Use of the Reserves of Private Subsidiary Farms"]

[Excerpts] The workers of Zolotonoshskiy Rayon are faced with large tasks in the fulfillment of their socialist commitments aimed at increasing the production and sale of animal husbandry products during the 11th Five-Year Plan.

The rayon's animal husbandry is a large specialized branch that produces more than 38 million rubles worth of commodity output a year, which comprises around 60 percent of the value of the total agricultural output of the rayon's kolkhozes and sovkhozes.

In addition to the development of public production, the reserves of the subsidiary farms of the kolkhoz workers, workers, and employees are being used. And although purchases of output surpluses from the population are not decisive for state resources, their importance is great. Thus, during the 10th Five-Year Plan the proportions of rayon procurements sold by the population were are follows: eggs--23 percent, fruit--16, potatoes--7, meat--6, vegetables--4, and milk--3 percent.

An analysis of the purchase level of animal husbandry output from the population shows that far from full use is being made of the possibilities of private subsidiary farms. There are still considerable reserves here. For this reason, for the 11th Five-Year Plan it is planned in the rayon to increase purchases of surplus potatoes by 26.2 percent, meat--35, fruit--18.7, and vegetables--by 3.7 percent compared to the level actually reached in the 10th Five-Year Plan.

Government and agricultural agencies are providing assistance to the population in cultivating private plots and are supplying the seeds of high yield varieties, sprouts, seedlings, and mineral fertilizers. Land plots are being allocated to teachers, doctors, and other specialists who live in rural areas. This year alone the residents of rural areas received 162 hectares of arable land. Kolkhozes and sovkhozes have begun to provide credit to citizens in purchasing cows and calves. During the 10th Five-Year Plan the population was sold 731 head of cattle, 89,300 piglets, and more than 2.3 million young poultry. Allotments were made of 3,000 hectares of pasture land and 411 hectares of hay land, and 17,400 tons of coarse feed was sold, including 4.2 thousand tons of hay, 25,300 tons of succulent feeds, and 6,700 tons of concentrates.

Without forgetting about the development of public animal husbandry, the rayispolkom and the rural Soviets of People's Deputies, under the leadership of the rayon party organization, are conducting planned work to increase the production and procurements of output surpluses on the subsidiary farms of citizens.

During the 10th Five-Year Plan substantially more milk, eggs, potatoes, fruits and vegetables, and other output was procured from the population than was planned. Last year 253 kilograms of milk was procured from every cow in the personal possession of citizens. In all, our rayon provides one-third of the milk which comes into the oblast from individual providers.

There have been appreciable successes in procurements of meat from the population. The total amount of livestock raised on subsidiary farms and purchased by state procurement organizations, consumers' cooperatives, and kolkhozes and sovkhozes during the past five-year plan came to 16,500 tons, which as an annual average comes to 146 kilograms of meat per household.

Strenuous work is being carried out in the rayon this year also. In six months 800 tons of milk and 2.8 millions eggs have been purchased from the population--substantially more than was planned. The procurements of meat in the three enumerated directions came to 928 tons. Before the end of the year not less than 300 kilograms of milk per cow, 150 kilograms of meat and 150 eggs per household will be purchased from the population.

It should be noted that during the last ten years a substantial number of rural inhabitants stopped keeping cattle and pigs on their farms, which led to a sharp decrease in herds. One of the reasons for this is an unwillingness to perform subsidiary farming which is especially marked in young families. But the chief reason is the worsening of the conditions for livestock maintenance, a decrease in pasture areas and a decrease in the amount of feed. It is characteristic that during the last two years only 300-400 grams of grain has been sold per ruble of basic kolkhoz worker wages. With such feed supplies it is extremely difficult to keep cows, pigs, and poultry.

This is why in order to increase the production of animal husbandry products on private farms concern has to be shown for the sale of feeds to kolkhoz workers.

During six months of this year the number of cattle, pigs, and poultry in the possession of the rayon's population increased by almost 1,000 head. In the future years of the five-year plan it will double. Every year the population will be sold 2,000 piglets and 500,000-540,000 head of young poultry. The possibilities for this exist. The old swine farms have been reconstructed on all of the kolkhozes and sovkhozes. The production capacities of the interfarm incubator-poultry breeding station and of the two sovkhoz-reproducers will be increased and this will take care entirely of the population's needs for young poultry of all types.

The creation of subsidiary farms at industrial enterprises and at organizations and institutions is an important reserve for increasing the production of animal husbandry products. Thus, the construction of pig sties for 100 head and of a greenhouse has already been planned at the machinery repair and the Pal'mir Sugar Plants. The administration of the timber enterprise has been bound to obtain 15-20 tons of additional cattle weight during the year, and the board of the "Dneprovets" fishing kolkhoz has been bound to grow 3,000 ducks and to sell the state 5-6 tons of poultry meat. A number of enterprises and organizations have already had subsidiary farms on which pigs are being raised--these are the canning plant, the boarding school, the invalid home, the public catering combine of the rayon union of consumers' cooperatives, and others. In the future many enterprises and organizations in the rayon will have such subsidiary farms. During the five-year plan this reserve will provide the state's resources with more than 150 tons of meat, and also a substantial amount of potatoes, vegetables, and other output.

The production of meat on contract with kolkhozes and sovkhozes has been becoming very widespread lately. A special place is also being assigned to the further development of rabbit breeding on private farms and in schools. The task has been set of having every pupil raise not less than two rabbits a year. This will produce an additional 50-60 tons of dietetic meat.

At the present time a substantial amount of the products which are produced on subsidiary farms does not come into state resources. This is witnessed, if by nothing else, than by the fact that in past years state procurements of meat from the population came to 800-900 tons, while last year it was only 240 tons.

A special place is being assigned in the work of the local Soviets of People's Deputies to explaining the importance of procurements of agricultural products from the population. These agencies exercise control over the correct use of private plots, and also try to see to it that the kolkhozes and sovkhozes provide the population with assistance in the punctual reception of output.

In those places where this work is well organized a substantial amount of agricultural output comes into state resources. Even with the identical conditions of the rayon in 1980 the Krapivnyanskiy, Bubnovsko-Slobodskiy, Kovrayskiy, and Antipovskiy rural Soviets bought 300-383 kilograms of milk per cow, while the Novodmitrovskiy, Korobovskiy, Zorevskiy, Denezhskiy, and Gladkovshchinskiy rural Soviets bought half that amount. Or another example: the Bogdanovskiy and Kalenikovskiy rural Soviets bought 303-331 eggs per household, while the Chapaevskiy and Novodmitrovskiy rural Soviets bought ten times less. If cooperative workers, economic leaders, and rural Soviets worked everywhere with the same intensity, 350 additional tons of milk and more than 2 million additional eggs could have been procured in the rayon. Our efforts are now directed toward this end.

All of the work being performed by farm leaders, specialists, and animal husbandry experts has produced results. Compared to the corresponding period of last year, during a half-year the rayon has sold the state 100 tons more meat, 2,000 tons more milk, 1.3 million more eggs, and 150 quintals more wool; half of the farms have overfulfilled their half-year plans for the sale of meat to the state in advance, 11 out of 14 have done so for eggs, and 3 farms have done so for milk. Production per 100 hectares for agricultural land has been 203 quintals of milk and 65 quintals of meat. Average cattle delivery weight came to 440 kilograms and 89 percent of the cattle sold had the highest fatness level.

A good stock has been created in the rayon for the fulfillment of the state assignments of the 11th Five-Year Plan. The half-year plan for the sale to the state of meat has been overfulfilled by 69 tons, milk--979 tons, eggs--1,565,000 units, and wool--by more than 2 times. This is our contribution to the accomplishment of the food program which is directed toward a further improvement of the life of Soviet man.

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Ukrainian Rayon Meat Resources

Moscow ZAKUPKI SEL'SKOKHOZYAYSTVENNYKH PRODUKTOV In Russian No 10, Oct 81 pp 15-17

[Article by I. Steshenko, chairman of the ispolkom of the Zhashkovskiy Rayon Soviet of People's Deputies: "A Weighty Addition to Meat Resources"]

[Excerpts] The basic direction in the development of our rayon's agriculture is grain and sugar beet growing, with an intensively developed animal husbandry: 14 farms are specialized in the production of milk, one in growing heifers, two in fattening cattle, six in growing and fattening pigs, two in growing sheep, two in the production of eggs, and one in the production of duck meat.

Despite the fact that the rayon's farms have been specialized in the production of a specific type of agricultural output, until recently the level of their indicators in animal husbandry has remained low. This is explained by the fact that the problems of providing full supplies of animal feeds had not yet been solved and advanced production technology was introduced poorly on the livestock sections.

We understand very well that the accomplishment of the tasks which have been set is inconceivable without a further increase in the numbers of livestock and poultry, without an improvement in breeding work, further production specialization and concentration, the mastery of a new beef production technology and a further intensification of swine breeding, and without a substantial strengthening of the feed base.

The first work results of the rayon's animal husbandry specialists show that the prospects which have been projected are basically being reached. Our kolkhoz and sovkhoz workers have fulfilled their half-year plan for the sale of meat to the state by 112.6 percent, milk--97.2, and eggs--by 107.6 percent. The state has been sold substantially more output than during the corresponding period of last year. Compared to last year, the numbers of all types of livestock and poultry have also increased.

A progressive beef production technology has begun to be used in the rayon. It consists of placing calves aged 15-20 days on special farms for additional growth to 350-360 kilograms with their subsequent shipment to inter-kolkhoz fattening enterprises (of which their are two in the rayon) for final pulp fattening to 450-460 kilograms. Livestock density on the farms has also increased. Per 100 hectares of agricultural land it comes to 65.6 head for cattle and 70.8 head for swine.

In the accomplishment of the difficult tasks of animal husbandry a great deal of attention is being devoted to increasing the production of output on the private subsidiary farms of citizens. This is one of the important reserves.

"The basis of socialist agriculture," comrade L.I. Brezhnev said at the 26th Party Congress, "has been and remains the kolkhozes and sovkhozes. But this does not at all mean that the possibilities of private subsidiary farms can be disregarded. Experience shows that such farms can be an important support in the production of meat, milk, and certain other products. The gardens, orchards, poultry, and livestock which belong to the workers are a part of our commonwealth." This is why the call by the Bosivskiy, Lysyanskiy, and Budnovsko-Slobodskiy rural Soviets of Zolotonoshskiy Rayon to the local Soviets of our oblast to increase the production of animal husbandry output on the private subsidiary farms of citizens found such a wide response in all of the rayons.

This call was approved by the ispolkom of the oblast Soviet of People's Deputies and discussed at sessions of the rayon Soviets, including ours, and at meetings and gatherings of citizens. Concrete measures have been worked out and approved in the rayon on the development of socialist competition to increase the production and sale of agricultural output on the private subsidiary farms of kolkhoz workers, workers, and employees. These measures provide for the creation of material and moral stimuli for those people who will take active part in public production on the basis of contracts with farms to raise and sell livestock and poultry.

The task is being set of having every household, and there are more than 16,000 of them in the rayon, raise and sell on contract with a kolkhoz not less than a quintal of pork, beef, rabbit, or poultry. Our plans have been reinforced by concrete deeds. It is planned to sell not less than 16,000 piglets to the population every year so that every village family will have the opportunity of buying not less than two piglets: one for itself, and the other for fattening on contract.

The needs of the farms and of the population for young poultry are already being fully met.

This year the population has been sold more than 7,400 piglets and 115,000 head of poultry. In addition, the kolkhozes have been given more than 1,000 head of cattle on raising and fattening contracts. It is also planned to make fuller use of the possibilities for developing private rabbit raising.

The number of amateur rabbit growers is constantly increasing in the rayon. This year the society of rabbit growers adopted a commitment to raise 127,000 rabbits and to sell the state 150 tons of meat, 5 tons more than last year.

For the purpose of growing fodder crops, citizens who have private farms and who have concluded livestock raising contracts have been allocated 98 hectares of land from the free house-adjacent fund, from timber lands and road strips, and from other lands which are not a part of the basic crop rotation lands.

On the basis of local conditions, every farm which has concluded a contract is given a specific quantity of feeds, fodder crop feeds, mineral fertilizers, and so forth. More than 100 tons of concentrates will be sold to the population through the society of rabbit growers.

The ispolkom of the rayon Soviet of People's Deputies has adopted a special decision on stimulating the sale to the state of the largest possible amount of meat and milk produced by private farms. For first place it is planned to sell, free of waiting lists, the "Moskvich" passenger car, for second--the MT-10 motorcycle, and for third--a cow valued at 600 rubles.

More than 6,000 contracts for the sale of agricultural output have been concluded with the rayon's citizens, including more than 2,000 for the sale of meat. The work on concluding contracts is continuing.

We understand very well that only the first steps have been taken in the accomplishment of the difficult tasks of increasing the production of animal husbandry output on the private farms of citizens. This work requires a further increase in the role of the local Soviets in the direction of economic and social and cultural construction, constant concern for improving the working and living conditions of people, and strengthening of the material and technical base of procurement enterprises and of the public services sphere, and an activization of political educational work, especially at places of residence.

These questions are now at the center of the attention of the local Soviets, their permanent commissions, deputies, and street committees. They are doing everything possible to create the conditions for the development and strengthening of private farms.

In accomplishing the difficult tasks of developing animal husbandry in the rayon, we are not forgetting about the shortcomings in the work of individual collectives of animal husbandry specialists. We are alarmed, in particular, by the state of the production and procurement of milk and pork. Compared to last year, cow productivity has decreased on the kolkhozes "Pravda," imeni Shevchenko, and "Druzhba," on the sovkhozes "Pugachevka" and "Zhashkov," and on other farms. Low additional weights are still being obtained in the fattening of cattle on the kolkhozes imeni Kuybyshev, imeni Chapayev, "Chervona Zirka," "Druzhba," imeni Kotovskiy, and imeni Il'ich and on the "Pugachevka" sovkhoz. Compared to last year, the "Mayak" special farm and the kolkhoz imeni Suvorov have decreased their production of pork. Our chief task is to bring the laggards up to the level of advanced farms.

The frontiers which we have reached in the socialist competition have to become the point of departure in our struggle for new successes in the development of animal husbandry. All of the reserves for the development of this branch will be put into action.

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AGRO-ECONOMICS AND ORGANIZATION

INTENSIFYING FRUIT, VEGETABLE PRODUCTION, PROCESSING IN RSFSR

Moscow SEL'SKOYE KHOZYAYSTVO ROSSII in Russian No 11, Nov 81 pp 2-4

[Article by V. Naumov, minister of the fruit and vegetable industry for the RSFSR: "Guaranteed Production of Vegetables and Fruit -- An Important Requirement of the Food Program"]

[Text] An improvement in the standard of living of the population is directly associated with increasing the production of agricultural products, including vegetables, potatoes, fruit and berries. The Ministry of the Fruit and Vegetable Industry of the RSFSR has been created in the republic for the purpose of improving the organization of production, procurements, processing, storage and the sale of these products. One thousand three hundred and twenty six sovkhozes, which together produce more than one half of the vegetables and 79 percent of the fruit and berries in the public sector, were transferred over to this ministry. The processing industry of the ministry has 121 canning plants, the capability of which is 3.4 billion conventional cans of canned goods. The new department includes 75 gorplodoovoshchtorgs [municipal trade organization for trading in fruit and vegetable products] and 2,626 specialized stores.

For the development and implementation of technical policies in fruit and vegetable production, the ministry was assigned a scientific research institute of the vegetable industry with six experimental stations and four experimental stations for horticulture. Agrarian-industrial associations were created in 63 oblasts, krays and autonomous republics.

The need for creating a fruit and vegetable industry system was dictated by life itself. Just the concentration alone, in the same hands, of the production of vegetables, fruit and berries and the storage and trading of these products made it possible to raise the efficiency of this vitally important branch. This is borne out in particular by the work performed by agroindustrial associations in Kuybyshevskaya, Kurganskaya Oblasts, in Stavropol'skiy Kray and in the Checheno-Ingushskaya ASSR. For example, let us take the Zhiguli Agroindustrial Association in Kuybyshevskaya Oblast. Since the moment of its creation, that is, in 1974, it has tripled its output sales volume. Thus, the sale of vegetables increased from 22,000 tons to 48,800 tons last year, potatoes -- from 5,400 to 17,400 tons and milk -- from 10,500 to 15,400 tons. In the process, all plans began to be fulfilled and improvements were achieved in the quality of the products and in production profitability. Many other examples of the successful operation of the vegetable conveyer line could be cited.

During the past five-year plan, the farms in the RSFSR raised their average annual production of vegetables by 19 percent above the figure for the Ninth Five-Year Plan, fruit and berries -- by 9 percent. The average annual procurements of vegetables increased by 28 percent and fruit and berries -- by 33 percent. However, it must be recognized that the level achieved is still lagging behind the increasing requirements of the population. In 1980, the per capita consumption of vegetables and melon crops throughout the republic amounted to only 80 kilograms, against a norm of 127 and for fruit and berries -- 27.5, against a norm of 85 kilograms. This situation derives from the fact that in recent years the cropping power of the vegetable and fruit and berry crops has shown almost no growth whatsoever. There are still many farms where the vegetable yield per hectare does not exceed 75 quintals. The situation is especially unfavorable in this regard in oblasts and autonomous republics in the nonchernozem zone, Siberia and the Far East.

Serious tasks associated with achieving a considerable increase in the production and sale of fruit and vegetable products have been assigned to the branch for the Eleventh Five-Year Plan. By 1985 the procurement volumes for vegetables must be raised by 1.18 million tons, or 17 percent, above the figure for 1980, fruit and berries -- by 642,000 or 56 percent, potatoes -- by 4.2 million tons or 61 percent and grapes -- by 41 percent. This year the sovkhozes of the ministry must sell more than 3.8 million tons of vegetables to the state, or 21 percent more than the average annual procurements during the Tenth Five-Year Plan. The procurements of fruit and berries will increase by 27 percent.

How can this program be carried out? First of all, measures must be carried out aimed at achieving further production concentration and specialization and a considerable increase in yields based upon improvements in soil fertility and in the overall culture of farming, converting the branch over to irrigation, introducing complex mechanization and more improved technologies into production operations and by means of a sharp reduction in crop losses during harvesting, transport and storage operations.

Special attention must be given to the need for concentrating the production of vegetables, fruit, berries and potatoes on large-scale specialized farms in the vicinity of cities and in the zones where these products are processed. As yet, only 34.4 percent of the vegetable production in the Russian Federation is being carried out at specialized farms and in Novgorodskaya Oblast -- only 4 percent, Kurganskaya Oblast -- 11.5, Bryanskaya Oblast -- 13.7, Vladimirskaya Oblast -- 19.3 and in the Bashkirskaya ASSR -- 8.6 percent. The specialized farms, equipped with the required complex of machines, make it possible to increase sharply the production of fruit and vegetable products and potatoes, lower their production costs and raise labor productivity. For example, let us take the Verkhnemullinskiy Sovkhoz, a large specialized farm in Permskaya Oblast. It obtains more than 300 quintals of vegetables per hectare annually from 1,700 hectares.

Vegetables are grown mainly outdoors. This affects the distribution and production of many crops throughout the republic. Thus, approximately 90 percent of the tomatoes are produced in the north Caucasus and in Astrakhanskaya and Volgogradskaya Oblasts and only 10 percent are produced in the remaining regions, where more than 85 percent of the republic's population resides. Approximately 75 percent of the overall tomato production is concentrated in the north Caucasus, central chernozem and Volga regions. At the same time, out on the vast expanses of Siberia and the Far East, in the Urals and in many oblasts in the center, where approximately two thirds of the population resides, the natural-climatic conditions, combined with proper observance of the technology and organization, make it possible to produce and obtain high yields of tomatoes, cucumbers and certain other crops outdoors. Nor can we accept as normal a situation wherein, during the past few years, the production of these crops has decreased sharply in these regions.

A similar situation prevails in connection with the distribution of the canning industry. Many types of canned goods are being transported over vast distances from the south, despite the fact that the soil-climatic conditions in many areas are such that fine yields of such crops as green peas, cabbage, carrots, beets, marrow squash and also fruit and berries can be obtained locally. Hence the production and processing of fruit and vegetable products must be distributed in a more rational manner so as to satisfy more completely the requirements of the residents in each industrial center and worker's settlement. While intensifying the production of goods at specialized farms, a complex of measures should be carried out at the same time aimed at intensifying the production of vegetables and fruit at those kolkhozes and sovkhozes having plantings of vegetable crops and perennial plantings.

Sheltered ground is of great importance for expanding the assortment and production of vegetable products during off-season periods. Today there are 1,450 hectares of winter hothouse space in the republic and 1,800 hectares of hothouse space under plastic. During this current five-year plan, the ministry plans to increase considerably the production of goods on sheltered ground through the construction of 741 hectares of glass hothouse space and 2,100 hectares of hothouse space under plastic.

The plans call for improvements in the work of supplying the population with fruit through the development of mountainous horticulture in the north Caucasus and other regions of the republic. Although it is more laborious and requires considerable capital investments, further expansion of the area of orchards at the present time must be carried out mainly along this line. It should be noted that mountainous horticulture makes it possible, in addition to stimulating the use of land deemed unsuitable for agricultural production, to achieve a high productivity for the plantings and good quality products. There are presently 47 specialized sovkhozes in operation on mountainous and hilly lands and they have 22,000 hectares of fruit and berry plantings at their disposal.

A further increase in the production of vitamin enriched products requires improvements in the cropping power of the vegetable and fruit and berry crops. A situation must be achieved wherein, during the next few years, the average vegetable yield will be no less than 200-250 quintals per hectare and that for fruit and berries -- 75-100 quintals per hectare. The potential is available for fulfilling these tasks. The experience of leading farms and entire rayons testifies to the tremendous internal reserves available at the specialized sovkhozes. During 1980, 272 quintals of vegetables per hectare were obtained from large areas in Moscow

Oblast and in Leningrad Oblast -- 283 quintals per hectare. The Yakhromskiy Sovkhoz in the Moscow area obtained 494 quintals of vegetables per hectare. The Vsevolozhskoye Association in Leningrad Oblast obtained 318 quintals from 1,670 hectares and the Detskosel'skoye Association -- 303 quintals from 4,216 hectares.

However, the experience of leading farms has still not been disseminated extensively. Thus the cropping power varies greatly. For example, the Teplichnyy and Narovchatskiy Sovkhozes in Chelyabinsk Oblast operate under identical conditions. In 1980 the former obtained 340 quintals of vegetables per hectare and the latter--only 153.

Fruit and vegetable crops respond very well to organic fertilizers. At the same time, an average of only 3-3.5 tons of organic materials are being applied to a hectare of arable land at the specialized sovkhozes. The task has been assigned of raising the application of organic materials to a minimum of 15-16 tons per hectare. All of the farms, jointly with the organizations and enterprises of Rossel'khozkhimiya, must actively join in solving this task.

With regard to further increasing the production of vegetables, fruit, berries and potatoes, great importance is attached to converting such production over to irrigation conditions. Considerable areas of vegetables are being cultivated under irrigation conditions in Rostovskaya, Kuybyshevskaya, Saratovskaya and Volgogradskaya Oblasts. However, this process is taking place very slowly in the RSFSR on the whole. In particular, this work is being carried out in a very weak manner in Bryanskaya Oblast, where only 1,000 out of 9,000 hectares of vegetables are being grown under irrigation conditions. The situation is roughly the same in Tul'skaya, Smolenskaya, Penzenskaya, Belgorodskaya, Irkutskaya and Voronezhskaya Oblasts and in the Mordovskaya ASSR.

Horticulture is also being converted over to irrigation at a slow rate. Throughout the RSFSR on the whole, only 19 percent of the fruit and berry plantings are being cultivated under irrigation conditions and at sovkhozes in the central-chernozem, Urals and Volgo-Vyatskiy regions -- only 4 percent. Indeed, vegetable production and horticulture must be converted over to irrigation completely during the current five-year plan.

The shortcomings in seed production for vegetable crops and in nursery production operations for fruit and berry crops are being eliminated in an extremely slow manner. Today the status of these operations is such that further development of the branch is not being ensured. Thus the plans call for measures to be carried out aimed at further strengthening the logistical base for such farms, intensifying their production specialization and concentration and immediately converting seed production and nursery production operations over to irrigation.

A most important factor with regard to increasing the intensification of vegetable, fruit and berry production is that of all-round mechanization of their cultivation and harvesting operations. These are the most labor-intensive branches in agriculture. During the past five-year plan, the average annual expenditure of labor for 1 hectare of vegetables at sovkhozes was more than 680 man-hours. This is more than twice as great than the figure for other row crops. At the same time, the present level of mechanization for a number of operations being carried out in the branch continues to remain low and many operations are not mechanized whatsoever.

For example, there is row weed control work in vegetable production and in horticulture -- the harvesting of the fruit and berries and their shipments. All loading operations, the sorting and grading of fruit, the harvesting of vegetables and the tending of berry patches have been mechanized to only a minor degree. Approximately 70 types of various machines are required for the all-round mechanization of vegetable production and only a third of this number are being produced. This then is an area requiring greater concern on the part of the engineering service, jointly with the efficiency experts.

In connection with supplying the population with fruit and vegetables on a continuous basis, special importance is attached to another link in the vegetable production line -- processing. However, only 63 percent of the capability of the processing industry was utilized in 1980.

The final link in the fruit and vegetable complex is the trade. What is first of all required in order to achieve improvements in this area? First of all, the trade network should be expanded considerably, since the plan of the Tenth Five-Year Plan for constructing stores was not fulfilled. Secondly, more extensive use should be made of progressive forms and methods. In particular, vegetables should be sold on a delivery-to-the-home basis and on the basis of advance orders and more extensive use should be made of lines for the commercial processing, bagging and packaging of potatoes, onions, carrots, fruit in net bags and trading in wet products.

Today the volumes of products being produced in agriculture are making it possible to improve considerably the work of supplying the population with many types of food goods, particularly vegetables and fruit. However, during the past five-year plan the average annual consumption of these products increased at a slower rate than their production. And the principal reason for this -- considerable losses. Owing to shortages and disruptions in the storage technology, up to 15-20 percent of the output is being lost and when potatoes are stored in clamps -- up to 35-40 percent. For the ministry's farms and enterprises on the whole, the available fruit and vegetable storehouses are satisfying only 60 percent of the requirements for storage space and in some oblasts, for example Kuybyshevskaya and Tambovskaya -- only 30 percent of the requirements. Many canning plants lack storage bases entirely.

Great importance is attached to storing the fruit and vegetable products and potatoes in the areas where they are produced. According to data furnished by scientific institutes, the storage of fruit, vegetables and potatoes in the areas where they are produced, compared to storage in their consumption areas, lowers the transport expenses by 15-25 percent per ton of products sold and overall storage expenses by 10-15 percent (without taking into account the transport expenses).

The losses in fruit and vegetable products are reduced considerably when they are stored using polyethylene plastic. When stored in polyethylene bags, carrots are preserved by 98-100 percent and when trench storage is employed -- 64 percent. This same type of storage produces positive results for other crops.

The Ministry of the Fruit and Vegetable Industry for the RSFSR and its structural subunits in the various areas have been assigned the task of radically strengthening the logistical base for storage during the next few years. Towards this end, the plans call for the construction, during the current five-year plan, of storage capacities for 260,000 tons of fruit and 570,000 tons of vegetables, or 4.5 times more construction than that carried out during the past five-year plan.

However, it is not enough to merely have good storehouses available. A requirement also exists for observing the rules and technological regimes for the storage of products. Quite often potatoes are stored together with cabbage and onions and cabbage is stored with other vegetables. If the temperature and moisture regimes are not maintained, the quality of the products deteriorates.

For the purpose of raising quality and reducing product losses, great importance is attached to ensuring that the farms and enterprises of the processing industry are supplied with packaging materials. The container method for transporting and storing products should be introduced into operations on a more extensive scale; it reduces manual labor expenditures by more than threefold and overall expenditures -- by twofold. The losses in products are also considerably less. Five plants are to be built during the 1982-1985 period in the interest of ensuring that the farms are supplied with packaging materials. The capability of each enterprise -- 6 million boxes. They will also repair packaging materials that are returned. The plans also call for the erection of two plants for the production of cardboard boxes for canned goods and for the expansion and modernization of five existing enterprises for the production of cans made out of chrome-plated tin, aluminum and metal tops.

The procurement of fruit and vegetable products directly, or as the saying goes from "the field to the store," will be introduced into operations on an extensive scale during the next few years. This method of procurement, whereby the trade organizations accept products in the areas where they are produced, allows them to select and supply the stores with higher quality products. At the same time, the farmers are relieved of the responsibility of finding a market place for their products. Transport and other expenses are reduced.

In solving the great and complicated tasks confronting the ministry and its entire system, considerable importance is attached to science. The Scientific Research Institute of the Vegetable Industry and its experimental stations have supplied production with 128 varieties. These varieties are now being sown on more than one half of the vegetable areas and 80 percent of the melon crop areas. In particular, great importance is being attached to the varieties and hybrids developed by the institute during the past few years for cultivation on sheltered ground. Scientifically sound crop rotation plans and systems for the use of fertilizers have been developed and recommended for use.

The horticultural scientific research institutes and experimental stations are making a great contribution towards the development of industrial technologies and in plant breeding work. Today the scientists are confronted with the task of further improving and introducing industrial technologies for the cultivation of vegetables, creating intensive orchards of the industrial type that will provide high yields with minimal expenditures of labor and breeding new and more productive varieties and hybrids possessing resistance against diseases.

A strong foundation is available for successfully solving the tasks confronting the fruit and vegetable industry. The government of the republic has allocated large capital investments. They amount to 975 million rubles for 1981 alone. These funds are being employed mainly for raising soil fertility, introducing all-round mechanization into operations and for creating the logistical base for storage. However, major emphasis is being placed upon non-production construction associated with the social reorganization of the rural areas. Special attention will be given to the quality of housing construction, to the construction of other social and cultural installations and to carrying out civic improvements in settlements.

An increase in the production of fruit and vegetable products and improvements in the preservation, transporting, processing and delivery of these products to the consumers will constitute a substantial contribution towards implementing the food program developed in light of the requirements of the 26th CPSU Congress.

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STRENGTHENING ECONOMIC RELATIONSHIPS IN STAVROPOL'SKIY KRAY

Moscow SEL'SKAYA ZHIZN' in Russian 8 Dec 81 p 2

[Article by V. Kalashnikov, secretary of the Stavropol'skiy Kray CPSU Committee: "When the Goal Is the Same"]

[Text] During the November (1981) Plenum of the CC CPSU, the food problem was cited as a principal problem of the five-year plan. A reliable foundation for successfully solving this problem -- radical changes in agriculture, which are being carried out as a result of the persistent implementation of the modern agrarian policies of our party.

Stavropol'skiy Kray serves as a clear example of the beneficial effect of these changes. Two mutually related processes are most typical. On the one hand, there is the comprehensive industrialization of agricultural production, which is increasing the importance of the intensive factors of production. And on the other hand, there is also the process of social division of labor based upon production specialization and concentration. The forms and methods for organizing labor and control have changed radically and scientifically sound systems have been introduced for farming and animal husbandry.

During the Tenth Five-Year Plan, the kray commenced implementing long-term special purpose programs in connection with various agricultural trends. Grain production increased by 1.4 million tons and sugar beets by 1.2 million tons. Increases took place in the production of vegetables, milk, meat and wool. The monetary income of kolkhozes and sovkhozes increased by 24.2 percent. The monthly wages of kolkhoz members and sovkhoz workers increased by 33 rubles.

Greater labor activity was displayed by workers, kolkhoz members and specialists. A distinctive feature of the work performed by the personnel of leading kolkhozes and sovkhozes was their constant searching for new and leading developments, their ability to make politically mature and scientifically sound decisions and their persistence in ensuring that all tasks were carried out to a successful finish. The development and introduction of the Ipatovo method of complex utilization of equipment, the experience of Krasnogvardeyskiy Rayon in interfarm cooperation in the use of mechanization equipment and others, serve as clear examples of the above.

These features found concrete expression in the work performed by workers at the Kaz'minskiy Kolkhoz in Kochubeyevskiy Rayon. Taking advantage of accumulated experience and scientific recommendations, they introduced enlarged crop rotation plans, they converted over to a departmental system of control and they employed the experience of the Ipatovo and Krasnogvardeyskiy Rayon workers in a creative manner. The reorganization of the organizational structure of production was accompanied by improvements in the system of material and moral incentives for the work performed by kolkhoz members. As a result, the output sales volume of the kolkhoz increased to 9.6 million rubles, 3 million rubles of net income were obtained and the profitability level exceeded 45 percent.

The decree of the CC CPSU and USSR Council of Ministers entitled "On Improvements in the Planning and Economic Stimulation of Production and the Procurement of Agricultural Products" provided a new and powerful impulse for improving economic work. A method for preparing the plans of rayons and farms was developed within a brief period of time. It was based upon the level of land usage at a kolkhoz or sovkhoz, upon the availability of funds and manpower and upon other objective indicators.

The plans for the current year were computed and completed using the new method. This made it possible to uncover large reserves.

In the spring a new statute was introduced throughout the kray concerning the wages of machine operators. The new system is based upon the carrying out of work during the best agrotechnical periods and in a high quality manner, upon progressive wages for harvesting the crops and upon additional incentives for those machine operators which operate K-700 and T-150 tractors and caterpillar tractors in field crop husbandry.

The measures undertaken exerted a positive effect with regard to the operational results achieved during this current complicated year. Approximately 2.4 million tons of grain, or more than the plan by 525,000 tons, were sold to the state. Tasks are being carried out for all animal husbandry products.

The communists, leaders, specialists and all agricultural workers in Stavropol'skiy Kray are well aware that high rates of development for production provide a guarantee for strong kolkhoz and sovkhoz economies. During the Eleventh Five-Year Plan, the kray must increase its average annual gross output volume by 21 percent and labor productivity by 24 percent.

Profound changes in the economic relationships of the agroindustrial complex require further improvements in the economic mechanism. As noted by Comrade L.I. Brezhnev during the November (1981) Plenum of the CC CPSU, "conditions must be created which will stimulate more actively growth and a raised intensity for agricultural production, stimulate the initiative of kolkhozes and sovkhozes and all links in the agroindustrial complex and force them to operate not on the basis of intermediate indicators but rather in behalf of high final results."

The just nature of these words is clearly apparent in the example provided by our kray. It is known that a suitable profitability is required in order to achieve definite rates of development for production. For example, in order to achieve the 21 percent increase in gross output volume planned for the Eleventh Five-Year Plan, the normative profitability for kolkhozes and sovkhozes must be 40 percent and for the branches which serve them and the processing industry -- 16-18 percent.

Unfortunately, many farms throughout the kray are still unable to carry out expanded production using their own sources and must obtain credit from Gosbank. The indebtedness of kolkhozes and sovkhozes in terms of long-term and short-term loans has increased sharply. Thus a chief and paramount concern is that of converting the agroindustrial complex, particularly the kolkhozes and sovkhozes, over to complete cost accounting.

An important task is that of raising the effectiveness and economic operations of those branches which provide services for the rural areas and also those which process the agricultural products. The interfarm enterprises for the mechanization of agriculture, formed by means of cooperation between the kolkhozes and sovkhozes on the one hand and the subunits of Goskomsel'khoztekhnika on the other, have been in operation in the kray for 2 years now. These formations have a number of distinctive features which, in our opinion, are bringing the desired result ever closer. Thus the accounts for work carried out are established by the council of the interfarm enterprise and they appear as the normative production cost and a proportion of the incentive funds for the year. All of the profit is added to the accounts of the participating farms, which finance further development of the enterprise. The acquisition of equipment and the construction of vehicle yards and workshops are carried out using the resources of the kolkhozes and sovkhozes, whereas centralized installations in the rayon centers are built using state resources.

The workers attached to an interfarm enterprise are motivated to obtain output and profit only by the kolkhoz or sovkhoz being served. All of the additional savings realized is distributed among the workers who created it and the farm. Last year, 8.5 million rubles were returned to the kolkhozes and sovkhozes.

The enterprises of Sel'khozkhimiya operate completely differently. For some reason or other, one of their chief goals is that of obtaining profit. And they obtain it in the amount of 3.5-4 million rubles annually using all available means. Not one kopeck of this amount is returned to the farms. There is still one other fact: if the crop is harvested by the farms being served, the workers attached to the service are awarded bonuses in the amount of 0.2 of their official monthly salary and 4-5 amounts for other indicators.

We believe that Sel'khozkhimiya, similar to other functional subcomplexes, must be organized on the basis of interdepartmental cooperation with kolkhozes and sovkhozes. Together they must establish mutual relationships and computed rates for determining the planned norm and a strictly scientifically sound production cost for work carried out. Such a system should be disseminated to the construction-transport, planning and other organizations which, in our opinion and taking into account the scales for the rayon and kray, must also be combined by means of cooperation, according to branches and based upon one leading organization.

The network of procurement organizations is presently characterized by a high degree of unwieldy size. We are of the opinion that the function of procuring products should be turned over to the kolkhozes and sovkhozes and, further, these same kolkhozes and sovkhozes should be converted over to maintaining direct contacts with the processing industry and trade organizations. The function of determining the quality of the goods sold should ideally be turned over to them, that is, the system which prevails in industry at the present time should be extended to agricultural enterprises. This will bring about a considerable reduction in the amount of equipment, a great savings in maintenance expenses and a substantial increase in the output of products.

It should be borne in mind that the problems concerned with economic relationships between enterprises and their placement are closely associated with the problem of retaining workers in the rural areas. Many organizations have been created in the rayon centers for providing services for agriculture. They are being provided with new equipment. This represents one reason why the youth are departing for the rayon centers and cities.

For example, was the creation of rayon departments within the Sel'khozkhimiya system, for the movement of farmyard manure out onto the fields, the correct thing to do? Nobody is more interested in performing well on their fields and farms than the kolkhoz members themselves. The large kolkhozes and sovkhozes are capable of accumulating and transporting farmyard manure out onto the fields. But they need equipment in order to do this.

It is believed that the enterprises which provide services for agriculture should move their subunits closer to the kolkhozes and sovkhozes. And only those services should be established at rayon centers or in cities which are not feasible for or impossible to establish at a kolkhoz or sovkhoz. This applies to construction and transport organizations and so forth.

In short, we have a great amount of work confronting us. The kray's workers have been inspired by the kind words addressed to them in the speech delivered by Comrade L.I. Brezhnev during the Plenum of the CC CPSU. In response to the high grade assigned to our work, we display new enthusiasm for the socialist competition for raising production efficiency and the quality of work and for fulfilling the plans of the Eleventh Five-Year Plan.

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COMBINATION OF PRIVATE, PUBLIC SECTORS IN LIVESTOCK PRODUCTION

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 11, Nov 81 pp 62-68

/Article by Iskra Vladimirovna Makarova, candidate of economic sciences, senior scientific worker at the All-Union Scientific Research Institute of Economics of Agriculture: "Problems of Combination of Public and Private Subsidiary Farms"/

/Text/ Along with the public sector the population's private subsidiary farms play an important role in the further improvement in the population's diet through an increase in the consumption of products most valuable in terms of nutrition. Animal husbandry is their main production specialization. Thus, on the average, during the 10th Five-Year Plan livestock products comprised about 70 percent of the gross output of private subsidiary farms and 57 percent, in the public sector.

The possibilities of increasing the production of livestock products on the population's private subsidiary farms directly depend on their efficient combination with the public sector. Animals on the citizens' private subsidiary farms need constant veterinary and zootechnical services. Families wishing to acquire a cow or to replace it turn to the public sector for assistance. The population's need for hoglings and chicks is also met basically by the public sector. The development of animal husbandry on private subsidiary farms largely depends on the public sector in the provision of animals with feed. At the beginning of 1980 the population kept 20 percent of the large-horned cattle (including 30.5 percent of the cows), 20.3 percent of the hogs and 17.6 percent of the sheep in all the categories of farms. There is also a need for an interconnected solution of the problems of purchases of livestock products on public and private subsidiary farms.

The decrees of the CPSU Central Committee and the USSR Council of Ministers "On the Private Subsidiary Farms of Kolkhoz Members, Workers, Employees and Other Citizens and Collective Horticulture and Gardening" and "On Additional Measures To Increase the Production of Agricultural Products on the Citizens' Private Subsidiary Farms" envisage a system of measures to activate the big potentials of private subsidiary farms in the production of livestock products. The utilization of the experience in the combination of public and private subsidiary farms as applied to highly diverse zonal conditions accumulated by the country's agriculture contributes to the implementation of this.

The reproduction of the stock of cows on the citizens' private subsidiary farms is one of the potentials for increasing the production of livestock products on them. Work on the insemination of individual cows was organized in a number of republics, krays and oblasts. For example, in Minskaya Oblast in the Belorussian SSR state pedigree stations and farms ensure the breeding of cows of the black-and-white breed regionalized in the oblast on private subsidiary farms. Obviously, animal specialists of farms and agricultural bodies should keep a record of the pedigree composition of livestock in the private use of citizens and envisage its improvement during the preparation of the general plan for pedigree work. The expenditures on these measures will be recovered through an increase in the productivity of animals and a more efficient utilization of labor, feed and other material and monetary resources expended on private subsidiary farms.

In many republics, krays and oblasts old cows kept by the population are replaced with heifer-calves, heifers or cows of the second and third lactation available in the public herd. Farms sell the exchanged old animals to the state for meat.

The replacement on the citizens' private subsidiary farms of low-productivity or old animals with highly productive ones through the culling of the latter from the public herd owing to their unsuitability for mechanical milking is a major potential for improving the pedigree composition of cows on these farms. Such an exchange is profitable for the population, because calculations are performed at purchase prices or at the costs of raising the animals, that is, at prices lower than market prices. For example, on the Zarya Kommunizma Kolkhoz in Omskiy Rayon, Omskaya Oblast, the sale of pedigree heifers to the population instead of the purchased old cows is made at their actual costs during the preceding year. This operation is also profitable for the public sector. Usually, the live weight of old cows is higher than that of the young stock sold instead of them. This difference in the weight of animals serves as an additional source of increase in the sale of meat to the state by kolkhozes and sovkhozes.

The problem with the purchase of heifer-calves, heifers and cows by families that did not have them is solved in a much more complex way. Only some farms adopted a specific procedure of the sale of heifer-calves and cows to such families. The Krasnyy Mayak Order of the Red Banner of Labor Kolkhoz in Gorodetskiy Rayon, Gor'kovskaya Oblast, sells cows at cost to all families receiving apartments in one-story kolkhoz houses with farm buildings who do not have cows. Farms in Serdobskiy Rayon, Penzenskaya Oblast, sell heifer-calves with a live weight of 150 kg to young families at a preferential price--1.26 to 1.52 rubles per kg of live weight.

Basically, however, kolkhozes, sovkhozes and other agricultural enterprises do not provide assistance to the population in the purchase of cows without an exchange for old ones, trying to utilize all the available stock for an increase in the sale to the state, while preserving the planned livestock population. This is stimulated by the established procedure of purchase price increments for the sale of output in excess of the level of the preceding five-year plan.

For example, let us take the Karavayevo Pedigree Plant in Kostromskiy Rayon, Kostromskaya Oblast. In order to establish a herd suitable for industrial technology and for pedigree breeding, more than one-fourth of the stock is annually removed from it. Only some of these highly productive cows--with an annual milk yield of up to 4,000 kg and more--are sold through the pedigree animal office to other farms and the rest are sent to the meat combine on account of fulfillment of the plan for the sale of meat to the state. As a rule, citizens who have heifer-calves on private subsidiary farms do not sell them to the population. They are interested in selling livestock to a kolkhoz or sovkhoz, from which they receive money, as well as feed, for it. In connection with this the population does not make sufficient use of the state credit for the purchase of a cow or a heifer-calf, up to 50 percent of which can be liquidated by sovkhozes and kolkhozes from economic incentive funds.

Obviously, the solution of the problem of providing the population with young dairy animals should be placed on a firm planned basis. It is necessary to create stocks for the sale of heifer-calves and cows to the population on farms and in rayons, oblasts, krays and autonomous republics. Both the forward contracting of heifer-calves from the population and their purchase from kolkhozes and sovkhozes can be the sources of such a stock. The implementation of these measures is possible only provided the young animals sold by farms for the stock for the sale to the population is credited to their fulfillment of the plan for state purchases of meat and citizens selling heifer-calves for the replenishment of this stock receive mixed and coarse feed as an incentive. It is appropriate to recall that a planned provision of the population's farms with heifer-calves was carried out successfully in our country during the Second Five-Year Plan, when the problem of an accelerated increase in the livestock population both on public and private subsidiary farms was being solved.

The provision of kolkhoz and sovkhoz workers with young large-horned cattle can also proceed through the distribution of heifer-calves to them for the preservation of the latter. Such a measure was widely practised earlier. The experience of the Kolkhoz imeni 50-Letiya SSSR in Issyk-Kul'skaya Oblast in the Kirghiz SSR convinces us of its effectiveness. According to the data by Hero of Socialist Labor N. Pristavin, chairman of the kolkhoz, on this farm a milkmaid, for obtaining offspring from every cow assigned to her, and a calf attendant, for the preservation of all the heifer-calves assigned to her and for raising them up to the age of 6 months, receive a 3-month old calf. As a result, the number of young animals increased both on private subsidiary farms and in the public herd, where the drop-out of heifer-calves was reduced in one-half during the first year of application of the incentive payment in kind in the form of young stock. On this farm the same payment is also used in sheep breeding. A brigade of shepherds is given 20 percent of the above-planned young stock weaned from ewes--up to 15 head per shepherd. This makes it possible to increase the preservation of the public stock and to replenish the herds of cows and sheep on private subsidiary farms.

The sale of hoglings to the population is of great importance for an increase in meat production on private subsidiary farms. Their purchase from kolkhozes and sovkhozes is profitable for the rural population. For example, the Experimental Model Farm imeni Kuybyshev in Orenburgskiy Rayon, Orenburgskaya Oblast, sells hoglings of spring farrow, the live weight of one animal being 8 to 12 kg, at the price of 1 ruble per kg. This price is one-fourth or one-fifth of that at which individual owners sell hoglings.

To provide the population with hoglings, it is advisable to more fully utilize the potentials of large specialized hog breeding farms. On these farms this problem is solved at lower costs and with higher productive qualities of the young stock.

The appropriate planning and organizational work on the part of agricultural bodies and farms should contribute to the development of the reproduction of hoglings at large specialized enterprises for sale to the population. For example, in Penzenskaya Oblast in accordance with the assignment established by the oblast executive committee for 1981 provision is made for the distribution throughout rayons of the hoglings allocated for sale to the population, of which almost two-thirds are produced by the Svinoprom Association. This association fully meets the need of the population of three rayons in the oblast for hoglings and partially, of 10 rayons (there is a total of 28 rayons). The Pankratovskoye Interfarm Association for Hog Breeding almost fully meets the need of the population of the largest rayon in the oblast--Penzenskiy--for hoglings. Assignments for the allocation of hoglings for the oblast stock for their sale to the population have been established for a number of rayons.

In Nerekhtskiy Rayon, Kostromskaya Oblast, the Nerekhta Interkolkhoz Hog Farm supplies the bulk of the hoglings for the population. The part of the offspring allocated by it for this purpose, as well as the output of some other farms in the rayon with hog sections, is distributed by the rayon executive committee (at the suggestion of the rayon planning commission) between rural and settlement soviets in accordance with their orders. The rayon planning commission constantly controls the filling of these orders and the observance of the schedule for the delivery of hoglings to settlements.

In other rayons in Kostromskaya Oblast provision is made for the sale of lambs of the Romanov breed to the population by kolkhozes and sovkhozes. Sheep breeding sections of three farms in Susaninskiy Rayon were entrusted with the supply of lambs for the entire population. This contributes to an increase in the production and procurement of valuable products of the traditional animal husbandry sector of the nonchernozem zone.

In Grodnenskaya Oblast in the Belorussian SSR trade union organizations of kolkhozes and sovkhozes play an active role in the organization of the provision of the population with hoglings. Together with rural and settlement soviets and farm managers they promptly detect the population's need for hoglings, make up orders and see to it that they are filled.

The problem of utilizing such a potential for the development of hog breeding on the population's private subsidiary farms as ensuring the sale of hoglings of fall farrows to rural residents who want and can engage in the breeding and fattening of hogs throughout the year has not yet been solved sufficiently. As experience has shown, the sale of hoglings of fall farrows at preferential prices is advisable. This will make it possible to lower the seasonal nature of the slaughter of hogs and will increase the population's provision with meat.

An efficient organization of the collection of orders for chicks and their delivery is especially important in the provision of the population with young poultry, whose production is concentrated at large specialized enterprises and associations. In most cases large poultry breeding enterprises cannot have direct connections with numerous private subsidiary farms, which need young poultry. Kolkhozes, sovkhozes and rural and settlement soviets of people's deputies should be the intermediaries in rural areas and poultry breeding associations, in cities.

The examples of successful organizational forms of relations between poultry breeding enterprises and the population are numerous. For example, on the Zolotarevskiy Pedigree Sovkhoz in Semikarakorskiy Rayon, Rostovskaya Oblast, in accordance with the collective agreement the farm's administration and workers' committee undertook the obligations to provide the population of sovkhoz settlements with chicks and goslings. They organize the delivery of young poultry within a period determined in advance from a poultry factory located at a distance of 60 km from the central farmstead of the sovkhoz and its distribution among families.

In Nerekhtskiy Rayon, Kostromskaya Oblast, rural and settlement soviets organize a regular, in accordance with orders and schedules, delivery of 1-day old chicks by the transport facilities of the poultry factory to the central farmsteads of kolkhozes and sovkhozes for sale to the population.

In the provision of the population with young poultry the unsatisfactory structure of the distributed young stock is a major shortcoming. Chicks of egg breeds predominate, while there is a shortage of young stock of meat breeds of chickens, ducks, geese and turkey and Guinea hens.

The need for a stable provision of the population with young poultry gives rise to the advisability of long-term contracts between poultry breeding enterprises and associations, on the one hand, and farms and poultry breeding partnerships provided with poultry, on the other. This will make it possible to determine the need for incubators, including seasonal, and for specialized means of transportation.

With regard to the provision of the population with little-widespread types of young poultry--geese and turkey and Guinea hens--the hatching of young stock from eggs purchased from the population for incubation on mutually advantageous terms can be a temporary measure.

The distribution of feed resources is the main problem in the combination of public and private subsidiary farms in animal husbandry. The difficulties in feed supply are the basic reason for the decrease in the livestock population among families of kolkhoz members, sovkhoz workers and other rural residents. At the same time, the experience of many farms and rayons and a number of oblasts, krays and republics shows that with a stable annual supply of feed for livestock in the private use of citizens its population hardly decreases or even increases. On the Gigant Kolkhoz in Kuznetskiy Rayon, Penzenskaya Oblast, where every year workers see to it that private livestock is provided with feed, the families of kolkhoz members keep as much livestock as they did 10 to 15 years ago. This is especially remarkable, because the composition of kolkhoz members is younger. Their average age is 33.

In Omskaya Oblast during the 10th Five-Year Plan the population's stock of large-horned cattle, while the number of rural residents decreased, increased almost 8 percent, including of cows, 2 percent, of hogs, more than 43 percent and of sheep, almost 3 percent. The oblast's population adds almost one-third of the milk and one-fifth of the meat to the output of the public sector.

The experience in the supply of feed for private livestock has shown that for a successful solution of this urgent problem it is necessary to observe the following basic principles: stability of distribution of feed from the public sector, interest of owners of livestock in the development of sovkhoz and kolkhoz feed production and the maximum possible inclusion in circulation of additional feed resources, which for one reason or another cannot be used in public animal husbandry.

Of course, the ways of implementing these principles are very different depending on zonal conditions, which determine the volume and structure of feed needed by public and private livestock, as well as the possibilities of meeting the need for feed. For example, farms in Omskaya Oblast manifest systematic concern for a stable provision of private livestock with feed. With the significant diversity of natural and economic conditions and of the feed resources connected with them a comparatively constant amount of hay, straw and grain waste is allocated for private livestock in all the oblast's rayons. In rayons with sufficient areas of natural hayfields plots for hay mowing, whose sizes, with due regard for the conditions during the year, meet the established norms of feed procurement, are allocated to owners of livestock. For example, the following is stated in the Rules of the Kolkhoz imeni Kuybyshev in Sedel'nikovskiy Rayon: "The Kolkhoz makes available to its members a hayfield area for the procurement of hay for feed for livestock on private subsidiary farms in terms of up to 30 quintals per cow, 15 quintals per head of young large-horned cattle and 5 quintals per sheep and goat."

In the basic grain regions located in the zones of the steppe and of the southern forest steppe, where the area of natural hayfields is insufficient, the necessary amount of straw and silage is allocated to owners of livestock. On the Zarya Kommunizma Kolkhoz in Omskiy Rayon straw is distributed in an unlimited quantity free of charge. It is also transported free of charge to the yards of kolkhoz members by the farm's transport facilities. Nor is the sale of silage limited there. During the second half of winter it is delivered to yards with payment at cost (10 rubles per ton), or at 5 rubles per quintal of the feed units contained in it. Furthermore, plots along roads unsuitable for the mechanized harvesting of grass are allocated for hay procurement. On the Pamyat' Chapayeva Sovkhoz in the same rayon in accordance with the collective contract up to 4 tons of straw are allocated per yard. On the Sosnovskiy Sovkhoz in Tavricheskiy Rayon in the same oblast 2 tons of straw are sold to every worker who has livestock. Furthermore, he is permitted to mow 1 ton of hay for his livestock on the sovkhoz territory. Plots are allocated in forests and along shoulders of roads, where the sovkhoz does not engage in hay procurement. Payment in kind in the form of hay (throughout the sovkhoz it totals up to 500 tons annually) is credited to all those who participate in the procurement of feed for public animal husbandry. The sovkhoz sells 1 ton of hay to pensioners who cannot procure hay on their own and gives them 2 tons of straw as to all workers.

During unproductive years, when some kolkhozes and sovkhozes in Omskaya Oblast procure hay and straw in rayons of both their own and other oblasts, coarse feed is provided for public, as well as private, livestock. During unproductive years the Sovetskaya Rossiya Kolkhoz in Moskalenskiy Rayon, procuring hay in other rayons, sells part of it to kolkhoz members in terms of 3 tons per cow. The Pamyat' Chapayeva Sovkhoz in Omskiy Rayon during unproductive years, when straw has to be brought from other rayons, sells it to its workers in amounts envisaged by the collective agreement. Other farms act in the same way.

In most rayons in Omskaya Oblast kolkhozes sell up to 2 quintals of grain waste per member of a kolkhoz family. Provision is also made for the sale of grain and grain waste by sovkhozes to their workers in accordance with collective agreements. As a result of the adopted measures the livestock population on the oblast's private subsidiary farms is maintained at the same level even during years with a low productivity.

Various forms of stimulation of the participation of livestock owners in the development of feed production are successfully used on a number of kolkhozes and sovkhozes in Kostromskaya Oblast. In the last few years hayfield plots have begun to be assigned to those who have private subsidiary farms on them for a number of years provided they mandatorily improve the used land. Such a form of utilization of primarily forest hayfields is especially advisable where there are small settlements. There are not many such settlements in the nonchernozem zone of the RSFSR, in the taiga and northern forest steppe regions of the Urals, West and East Siberia, the Far East and the Belorussian SSR, in the Poles'ye of the Ukraine and in the Baltic Republics.

Along with kolkhoz and sovkhoz forests, the land of state forest resources can be used for the procurement of hay for private livestock. In this case rural residents, who mow grass and graze their livestock in forests, can carry out work on forest planting and care of afforested areas.

On vast steppe territories with a high degree of land plowing the population can use suburban park land, off-the-road strips, irrigation canals and unsuitable and other land for the procurement of hay for private livestock. On the Zolotarevskiy Pedigree Sovkhoz in Semikarakorskiy Rayon, Rostovskaya Oblast, slopes of irrigation canals and strips adjoining them are sown with a grass mixture. These plots are distributed among livestock owners so that they may grow grass and take care of sown areas. This ensures the replenishment of the feed resources of private subsidiary farms and care of the irrigation network without expenditures on the part of the sovkhoz. Such practice has also become widespread on other farms with irrigated land.

Payment in kind for the cultivation of labor intensive fodder crops is used on a number of farms in the country's various regions. In Omskaya Oblast the areas sown with fodder beets are assigned to individual families for care and harvesting. In addition to the established usual payment, such families receive 10 percent of the grown and gathered harvest.

On the Novaya Zhizn' Kolkhoz in Nesvizhskiy Rayon, Minskaya Oblast, the Belorussian SSR, the cultivation of fodder beets and of a labor intensive industrial crop--flax--is stimulated with fodder distribution. Up to 0.5 hectares of areas sown with fodder beets and up to 0.5 hectares of areas sown with flax are assigned to families of kolkhoz members and other rural residents for the care of plants and harvesting. Along with a payment for the grown output, work on the cultivation of flax is stimulated with the allocation of 0.10 to 0.15 hectares of areas sown with perennial grass for hay mowing and with the sale of 5 quintals of straw at a preferential price (3 rubles per quintal). For the cultivation of fodder beets the kolkhoz sells 3 percent of the grown harvest at cost.

On the Lidskiy Sovkhoz in Lidskiy Rayon, Grodnenskaya Oblast, the Belorussian SSR, the sale of grain to machine operators working on caterpillar tractors is an integral part of the conditions of organization and remuneration of labor worked out on the sovkhoz. The sovkhoz sells 2 kg of grain per conventional standard hectare to machine operators. In summer machine operators can buy 4 quintals of grain as an advance.

Taking the increasing annual employment of the rural population into consideration, it is very important to solve the problem of allocation of time to kolkhoz members and sovkhoz workers for the procurement of feed for their private livestock. In cases when time is not determined in advance, their withdrawal for the procurement of feed for private livestock is detrimental to the public sector. Obviously, it is advisable to implement this measure in an organized way according to a schedule prepared in advance. This is done, for example, on the Kolkhoz imeni 50-Letiya SSR in Issyk Kul'skaya Oblast in the Kirghiz SSR. There kolkhoz members united into groups are assigned hayfield plots, harvesting equipment and means of transportation, which they utilize during the work week.

The organization of the summer keeping of private livestock is a more complex problem than the procurement of feed for it. Its solution is connected with the allocation of a sufficient area of pastures, provision of their care and selection of experienced shepherds responsible for the herd. In the country's various regions, when this problem is solved, public and private interests are combined intelligently. For example, in Omskaya Oblast and Altayskiy Kray in the RSFSR and in Grodnenskaya, Minskaya and other oblasts in the Belorussian SSR concern is manifested for the summer keeping of livestock in the population's private use just as for the keeping of public stock. When there is a shortage of natural grazing grounds, pastures are allocated both for public and private livestock. When the allocated areas are determined, it is taken into consideration that the pasture is the only source of green fodder for the population's livestock, whereas public livestock also receives green feeding. For example, the Novaya Zhizn' Kolkhoz in Nesvizhskiy Rayon, Minskaya Oblast, allocates 0.30 hectares of perennial cultivated pastures per head of the population's large-horned cattle.

However, even when pastures are available, livestock owners in many of the country's regions often experience great difficulties owing to the fact that despite very advantageous conditions it is impossible to find people wishing to graze private livestock constantly. The point is that for the modern rural worker, when selecting a job, along with the wage level, prestige is of fundamental importance. He believes that it is not prestigious to graze livestock. Furthermore, the job of a shepherd is seasonal, while livestock breeders--kolkhoz members and sovkhoz workers--are engaged in public production constantly. In connection with this a procedure in which owners of livestock graze it in turn has been established on many farms, especially with a small population.

An effective form of enhancing the social prestige of the population's livestock grazing was found in Omskaya Oblast and Altayskiy Kray. There livestock grazing is included in the services rendered by rayon domestic service combines. Kolkhozes and sovkhozes assign some herdsmen, who are needed on farms less in summer than in winter, for seasonal work as shepherds in the domestic service combine. The herdsman's time of work as a shepherd is credited to the total annual length of service. During that period he is paid if he is temporarily disabled according to a medical certificate and receives feed for private livestock from the public sector. The earnings for the time of the population's livestock grazing are taken into account when the payment for a work leave is calculated. Rayon domestic service combines, to whose accounts the money collected from livestock owners is transferred every month, pay the earned money to shepherds. Public cashiers selected by livestock owners perform this operation.

In some cases the payment for grazing is made by citizens individually through a savings bank. The amount of payment according to types of livestock is determined by the price list approved by the kray executive committee or the oblast executive committee. The average monthly earnings of a herdsman engaged in the population's livestock grazing is established at a level not lower than his earnings during work in the public sector. The domestic service combine provides shepherds with special clothing and footwear and kolkhozes and sovkhozes allocate saddle horses to them. Under such conditions kolkhoz members and sovkhoz workers willingly agree to graze private livestock. On the Zarya Kommunizma Kolkhoz in Omskiy Rayon, Omskaya Oblast, every year several people want every job of a shepherd of private livestock, of whom livestock owners select the appropriate candidates.

In small settlements, where the herd of private livestock is small, its owners cannot ensure a sufficiently high payment for shepherds and, moreover, it is not advisable to assign them to a small herd. Grazing private livestock together with public livestock with a collection of a certain pay from the population, which will ensure an additional payment for shepherds for the grazing of additional stock, is the only reasonable way out in this case. It is also possible to allocate for private livestock enclosures on cultivated pastures equipped with water bowls, where livestock can be kept without shepherds. Owing to these measures during the summer, most intense, period rural residents can allot more time to work in the public sector and in the plant growing of private subsidiary farms.

In order that the positive experience in the provision of private livestock with feed may become available to all farms, obviously, it is necessary to work out standard recommendations for the solution of these problems throughout republics, krays, oblasts and the country as a whole. Recommendations should reflect the norms of feeding, structures of rations, conditions for obtaining feed from the public sector, stimulation of participation in public feed production, allocation of plots for hay procurement, organization of the population's livestock grazing and so forth.

The problem of providing private livestock with zooveterinary services is urgent, but has not yet been solved finally. Practice gives rise to various organizational forms of such services. On a number of sovkhozes in Omskaya Oblast, when the staffs of veterinary workers are established, the population of both public and private livestock is taken into consideration. This makes it possible to have the necessary number of veterinarians, some of whom engage only in the servicing of private livestock. Such a procedure is necessary, in particular because at large animal husbandry complexes the veterinarian servicing the complex does not have the right to give help to private livestock in order not to spread a possible infection.

The country's increased needs for the products of animal husbandry and an enhancement in this sector of the leading role of public production give rise to the advisability and create possibilities for the cooperation on a contractual basis of animal husbandry on public and private subsidiary farms. The form of relationships emerging in such cooperation in its conditions is similar to the form of relationships in home work in industry. Its characteristic lies in the fact that in contrast to industry, which fully provides the home worker with raw materials, here part of the feed necessary for raising the young livestock and poultry obtained from a kolkhoz or sovkhoz is produced by kolkhoz members and sovkhoz workers and employees on their private plots. Part of the output obtained by them (also in contrast to industrial output) remains on the private subsidiary farm as an additional remuneration in excess of the basic payment.

Experience has shown that the cooperation of public production with private subsidiary farms in livestock and poultry raising can be carried out successfully in a number of regions in our country. It is advisable in cases when the public sector does not have production premises for the raising and fattening of certain types of livestock and poultry and the population has them and the possibility of utilizing additional labor and feed resources for this. Such cooperation is advisable in the raising of geese, ducks, turkey and Guinea hens and, in a number of regions, hogs and young large-horned cattle. Thus, the combination of the keeping of the parent herd of geese on kolkhozes and sovkhozes with the breeding of young stock on the population's private subsidiary farms can become a major potential for an increase in the production of high-quality poultry meat in the next 10 to 15 years. To keep parent herds on kolkhozes and sovkhozes, it is possible to build cheap unheated poultry houses or to adapt existing structures. Utilizing the biological properties of geese, they can be fed the cheapest feed: green fodder, bran, silage and grain waste. As the experience of a number of oblasts in the Ukrainian SSR indicates, the population, having accepted geese for raising, in 4 months (from May-June through August-September) can increase the live weight of one goose to 5 kg and more with the use of green fodder and a minimal expenditure of concentrates.

A distinctive form of cooperation of public production and private subsidiary farms can be used when ducks are kept in reservoirs where fish is bred. The Fishing Kolkhoz imeni Chapayev in Krasnodarskiy Kray, along with a fishery on the Sea of Azov, began to breed fish in natural ponds and estuaries. In order to also utilize these water sources for raising ducks, the kolkhoz buys 1-day old ducks at the incubator station and distributes them on the basis of contracts to the population, which keeps the young stock until the age of 25 days. The farm provides private subsidiary farms with mixed feed and zootechnical services. As a payment for poultry raising 20 percent of the ducks received for raising are left to the population. This is profitable for the farm, because the number of the ducks left does not exceed the norm of their waste during mass raising. The population is also interested in this. When raising 200 ducks, a family receives 40 head for its own use and it is easy to raise them to a given size near reservoirs.

There are also great possibilities for cooperation in such an early ripening sector as hog breeding. A considerable part of the rural population has free farm buildings and can grow feed for hogs on private plots and on plots additionally allocated to it and feed them food waste.

The transfer of large-horned cattle to the population for fattening has become widespread in a number of rayons in the Russian Federation and other republics. Such a need arises where kolkhozes and sovkhozes specialize in milk production. The establishment in such rayons of farms for raising and fattening young large-horned cattle is associated with a significant expenditure of concentrated feed or with the allocation of a feed area at the expense of a reduction in the area used for the provision of the dairy herd with feed.

In Moscow Oblast at the beginning of the 10th Five-Year Plan specialized fattening farms--the Voronovo Complex and sovkhozes of the Skotoprom Trust--out of 250,000 bulls were able to accept no more than 70,000 to 80,000 for fattening. The remaining stock was raised to a given size on dairy farms, which, owing to the shortage of feed and barns, delivered low-weight livestock to meat combines. Therefore, from the first years of the 10th Five-Year Plan, solving the problem of a fuller utilization of young large-horned cattle for meat production, farms in Stupinskiy, Yegor'yevskiy, Lukhovitskiy, Shaturskiy, Serebryano-Prudskiy and other rayons specializing in milk production began to transfer heifer-calves to the population for raising and fattening.

In rayons where meat is the basic type of product of cattle breeding and there are sufficient areas of natural fodder land other forms of production cooperation of public and private subsidiary farms are used.

The Experimental Model Farm imeni Kuybyshev in Orenburgskiy Rayon, Orenburgskaya Oblast, not only does not transfer heifer-calves to the population, but itself concludes forward contracts for the purchase of livestock from it in fall. A fattening herd is created from the heifer-calves contracted in spring, to which a sovkhoz shepherd and productive pastures are assigned. In fall the animals prepared for placement on a fattening area are purchased according to the live weight after pasture fattening.

Farms in Grodnenskaya Oblast in the Belorussian SSR more fully utilize the possibilities of raising young large-horned cattle and hogs by the population. There during the 10th Five-Year Plan the bulk of the meat from the population's private subsidiary farms is received in the form of forward contracting of livestock by kolkhozes and sovkhozes. In 1980 a total of 87 percent of the livestock was purchased in this way. The population raises the bulk of the young large-horned cattle and hogs contracted at the beginning of the year on private subsidiary farms until they meet the delivery requirements, utilizing coarse and succulent feed additionally obtained from the land of free private resources allocated according to the terms of the forward contract.

The development of production cooperation of public and private subsidiary farms in animal husbandry necessitates the elaboration of unified terms of payment to the population for raising public livestock and poultry on private subsidiary farms and the determination of standards of assignment of specialists for servicing private livestock, standards of its provision with feed and so forth.

The implementation of state measures for an all-around provision of the management of private animal husbandry and a creative utilization of the diverse experience in its combination with public production will make it possible to more fully utilize the potentials of the population's private subsidiary farms in the interest of society.

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TILLING AND CROPPING TECHNOLOGY

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METHOD FOR DETERMINING ECONOMIC EFFECTIVENESS OF FERTILIZERS

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[Article by V.V. Tokarev, candidate of economic sciences at the Central Institute of Agrochemical Services for Agriculture: "On a Method for Determining the Economic Effectiveness of Fertilizers in Agricultural Production"]

[Text] The principal initial indicator for commencing a determination of the economic effectiveness of fertilizers is the increase in yield realized from the use of them. Accuracy in determining the remaining indicators is dependent upon how correctly this initial indicator is established. At the same time, a determination of the amount of yield obtained under production conditions is a very difficult task, since the yield is dependent upon a combination of various factors. It is practically impossible to isolate the "pure" effect of fertilizers.

A number of authors have proposed the following indirect methods for determining increases in yields caused by the use of fertilizers:

-- using a method of analysis by periods (every 4-8 years) [1-3], to find the difference in norms for fertilizer applications and in the yields for the crops under cultivation. A portion or all of the increase in yield obtained during this period derives from the use of mineral fertilizers. The method makes it possible to determine the effectiveness of additional fertilizer applications, compared to the average norm for a period of many years, employed during the preceding period. The shortcomings of the method: it is impossible to determine the effectiveness of the fertilizers annually; the method is not suitable for incidents of constant or lowered norms for fertilizer applications; over a period of 4-8 years, considerable changes take place on the farms in the capital-labor and power-worker ratios and in other factors of intensification. However, no norms have been developed for crediting a portion of the overall increase to fertilizers, either for the country as a whole or for individual zones;

-- correlative-regressive analysis and statistical groupings [1-7] can be employed only when there are large complexes of farms (more than 20 percent), all of which have almost the same soil cover, are equally supplied with fixed and working capital, have roughly the same number of workers [1, 4, 5, 8, 9], but differ markedly in terms of fertilizer application norms and yields obtained;

-- the method of "relative control" [10] is based upon a computation of the increase in yield obtained from fertilizers, as the difference between the actual yield and the yield obtained when fertilizers were not used. The method is being employed extensively in the Belorussian SSR, it is awaiting approval in Permskaya and Khar'kovskaya Oblasts and it was employed earlier in the republics of Central Asia. Various methods are used for determining a yield obtained in the absence of fertilizer: using experimental data from controlled variants or experimental data equated to the production conditions, a point system for evaluating the land, agrometeorological resources, expert or other types of evaluations.

The chief shortcoming of this method -- strong distortion of the increase in yield obtained from fertilizers during years marked by unfavorable weather conditions. Only rarely do corrections for agrometeorological conditions improve the computations, since the various crops respond in different ways to such changes in the weather conditions;

-- the method of proportionate participation of fertilizers in an overall yield [1, 8, 11] has been employed successfully for a number of years in the GDR for computing the increases in yields on the farms resulting from the use of nitrogen mineral fertilizers, since phosphorus-potassium mineral fertilizers are added to the reserve for 2-3 years for a large portion of the territory. They represent the background for studying the effect of nitrogen on a yield during production tests. This method was used in our country during the 1930's. In 1973 it was used in the RADOZ program complex and in 1979 -- in a somewhat different modification -- by the Kazan' Branch of TsINAO [Central Institute of Agrochemical Services for Agriculture] [11]. The method of proportionate participation has not been used in production owing to the absence of the appropriate normative base. The situation changed with the appearance of norms differentiated according to several levels of fertilizer usage. The increase in yield for a hectare (Y_{yd}) is determined using the formula (1): $Y_{yd} = Y_f \cdot D_y : 100$ percent, where Y_f is the actual yield in production, quintals per hectare; D_y is the proportional participation of the fertilizers in the entire yield (%), computed for various levels of fertilizer application norms in production. The proportionate participation of the fertilizers is established using the data of the "Norms for Determining the Agricultural Requirements for Fertilizers" (USSR Ministry of Agriculture, 1980). It was obtained for each crop and zone using the formula (2): $D_y = Y_{yo} : Y_H \cdot 100$ percent, where Y_{yo} is the increase in yield for 1 hectare in a generalized group of experiments and Y_H is the yield obtained by this group following the application of fertilizers [12].

The branches of TsINAO, jointly with the planning-research stations for the use of chemical processes and agrochemical laboratories, must develop normative-reference material in which the group of crops is reflected more fully and their fertilization is differentiated for cultivation on different types of soils and varying degrees of continuous cultivation. The task consists of ensuring that each farm, rayon and oblast, during the next few years, is able to determine on an annual basis the economic effectiveness of fertilizer usage.

Approximate norms for farms in the central economic region are furnished in Table 1. We use this table to find the increase in agricultural crop yield resulting from mineral fertilizers and also the return realized in the form of yield. For example,

Table 1

Norms for Determining the Increase in Yield From Fertilizers in the Central Economic Region [12]

Crop	Yield, quintals per hectare		Increase in Yield From Fertilizers, Quintals per hectare	Fertilizer Norm, kg. of active agent per hectare	Proportionate Participation of Fertilizers, in %	Yield Return From 1 kg. of Active Fertilizer Agent, kg.	Scale 1% of Proportion, kg. of active agent per hectare
	In the Absence of Fertilizer	With Fertilizer Applications					
Grain crops (grain)	17.7	19.6	1.9	15	9.7	12.7	8.4
		24.5	6.8	168	28	4.05	14
		26.1	8.4	225	32	3.73	30
		26.8	9.1	285	34	3.19	
Winter Grain Crops (grain)	16.6	22.8	6.2	174	27	3.56	13
		24.3	7.7	238	32	3.24	13
		26.6	10.0	313	38	3.19	
Spring grain crops (grain)	18.5	26.1	7.6	172	29	4.42	14
		27.6	9.1	226	33	4.03	
		27.6	9.1	278	33	3.27	
Spinning flax (fibre)	5.4	7.0	1.6	148	23	1.08	4
		7.9	2.5	187	32	1.34	
		7.9	2.5	240	32	1.04	
Potatoes (total)	166	220	54	180	25	30.00	16
		230	64	228	28	28.07	33
		242	76	328	31	23.17	
including the forest-meadow zone	160	212	52	178	25	29.21	14
		224	64	234	29	27.35	30
		240	80	353	33	22.66	
the forest-steppe zone	184	244	60	180	25	33.33	15
		262	78	254	30	30.71	
		264	80	323	30	24.69	
Vegetables	469	609	140	287	23	48.78	12
		641	172	335	27	51.34	13
		692	223	398	32	56.03	
Food roots	421	759	338	366	45	92.30	31
		857	436	550	51	79.30	
Corn for silage and green feed	214	394	180	193	46	93.30	24
		414	200	240	48	83.30	23
		447	233	330	52	70.60	
Annual grasses (hay, total)	29.8	42.2	12.3	129	29	9.60	5
		49.8	20.0	184	40	10.90	
including the forest zone	30.0	43.0	13.0	134	30	9.70	5
		50.0	20.0	184	40	10.90	
Natural haying lands (hay)	23.1	44.7	21.6	174	48	12.40	7
		50.5	27.4	215	54	12.70	9
		57.0	33.9	261	59	13.00	
Cultivated haying lands (hay)	27.6	51.0	23.4	181	46	12.90	6
		57.6	31.6	234	55	13.50	5
		70.3	42.7	264	61	16.20	

on one farm the yield in winter grain crops amounted to 20 quintals per hectare. The norm for applying mineral fertilizers was 190 kilograms of active agent per hectare. We learn from Table 1 that this norm is close to 174 kilograms, with the difference being 16 kilograms. We also find in Table 1 that the proportion changes by 1 percent through each step (scale), corresponding to 13 kilograms of active agent per hectare. We introduce a correction to the proportion of participation. For 174 kilograms it equals 27 percent. It should increase by roughly 1 percent (16:13), that is, it will amount to 28 percent (27 plus 1). Substituting the values obtained in formula 1, we will obtain $Y_{yd} = 20 \cdot 28 : 100 = 5.6$ quintals per hectare.

We determine the return from 1 kilogram of active agent using the formula (3): $O = Y_{yd} : H$, where H is the norm for applying fertilizers on a farm in a conversion for active agent and O is the return in yield per kilogram of active agent. $O = 560 : 190 = 3.0$ kilograms of grain, 83 percent of the norm $(3.0:3.6 \cdot 100)$.

During experiments carried out at scientific research institutes, it was established that in crop rotation plans the active agent of both mineral and organic fertilizers returned the identical amount of yield. For computing the overall effect realized from the use of mineral and organic fertilizers, the dosages for all fertilizers are converted to active agent and the products of the field crop husbandry branch -- into grain units according to coefficients. For individual crops, in instances where the organic fertilizer norm does not exceed the average for a farm, all of it should be applied to the period being analyzed in a conversion for active agent and when high norms are applied (for example, for sugar beets, potatoes, vegetable crops and so forth) 50 percent should be applied for medium and heavy textured soils for the period under analysis and for light textured soils -- 60 percent of the norm [2]. Thereafter the fertilizer norm and the yield in grain units, per hectare of sowing are established. The gross increase from fertilizers for the entire crop sowing area is converted to grain units and summarized. Subsequently, by dividing this figure by the area sown in field crop husbandry, the increase in yield per hectare and the proportion of the gross yield are determined. With only minor changes in the fertilizer norms, the established increase in yield is used for computations on farms and in rayons and oblasts for a number of years.

The normative increase in yield for each crop is found by multiplying all of the fertilizers actually applied by the normative return per unit of yield. The increase by crops is converted into grain units and summarized for field crop husbandry as a whole. Thereafter the actual return in terms of yield is applied to the norm or to the average figure established over a period of many years.

According to our computations, during the 1976-1978 period the average return throughout the country per kilogram of mineral fertilizer active agent was 4.9 kilograms of grain, against a norm of 4.4 kilograms (111 percent). For the RSFSR it amounted to 114 percent, Ukrainian SSR -- 106, Uzbek SSR -- 118, Lithuanian SSR -- 100, Moldavian SSR -- 102, Kirghiz SSR -- 116 and for the Estonian SSR -- 139 percent. In the remaining union republics, the actual return from fertilizers in the form of grain was lower than the norm and fluctuated from 63 to 98 percent and for the economic regions of the RSFSR -- from 41 to 127 percent.

It bears mentioning that the return from fertilizers in the form of yield is determined to a large degree by the value indicators for the economic effectiveness

Average Expenditures for Acquiring and Applying To the Soil 1 Ton of Active Agent for the Principal Types and Forms of Mineral Fertilizers Supplied to Agriculture, On the Average for the RSFSR, During 1978

Удобрения (1)	Фактическая поставка минеральных удобрений, тыс. т физической массы (2)	(3) Затраты на 1 т физической массы, руб.					Среднее содержание д. в., % (9)	(10) Затраты на 1 т д. в., руб.				
		цена для сельского хозяйства (4)	наценка организаций Сельхозхимии (5)	расходы на хранение, транспортировку и внесение (6)	итого затрат франко-почва (7)	то же с учетом накладных расходов (23,3%) (8)		цена для сельского хозяйства (4)	наценка организаций Сельхозхимии (5)	расход на хранение, транспортировку и внесение (6)	итого затрат франко-почва (7)	то же с учетом накладных расходов (23,3%) (8)
(11) Азотные	8053,0	49,40	8,20	10,50	68,10	84,00	32,3	152,90	25,40	32,50	210,80	259,90
(12) аммиачная селитра с импортом	3562,8	53,00	8,20	11,27	72,47	89,30	34,9	151,90	23,50	32,30	207,70	256,10
(13) карбамид	1663,4	80,00	8,20	13,35	101,55	125,20	45,1	177,40	18,20	29,60	225,20	277,70
(14) сульфат аммония	801,0	35,00	8,20	9,10	52,30	64,50	20,5	170,70	40,00	44,40	255,10	314,50
(15) аммиачная вода	1691,7	22,00	8,20	6,60	36,80	45,40	20,5	107,30	40,00	32,20	179,50	221,30
(16) аммиак жидкий	55,9	72,00	8,20	30,80	111,00	136,80	82,0	87,80	10,00	37,60	135,40	166,90
(17) сульфат аммония (18) натрия	278,4	25,00	8,20	8,60	41,80	51,50	18,4	135,80	44,50	46,70	227,00	279,90
(19) Фосфорные	2989,0	41,10	8,20	8,00	57,30	70,60	30,5	134,70	26,90	26,20	187,80	231,60
(20) суперфосфат двойной гранулированный	1319,8	66,00	8,20	9,10	83,30	102,70	43,9	150,30	18,70	20,70	189,70	233,90
(21) суперфосфат простой гранулированный	869,2	21,50	8,20	7,70	37,40	46,10	19,4	110,80	42,30	39,70	192,80	237,70
(22) суперфосфат простой порошковидный	641,9	17,50	8,20	6,10	31,80	39,20	19,4	90,20	42,30	31,40	163,90	202,10
(23) борный суперфосфат двойной гранулированный	14,9	76,00	8,20	9,10	93,30	115,00	42,2	180,15	19,40	21,60	221,10	272,60
(24) борный суперфосфат простой гранулированный	90,9	31,00	8,20	7,70	46,90	57,80	19,8	156,60	41,40	38,90	236,90	292,10
(25) суперфосфат аммонизированный	0,2	20,90	8,20	7,10	36,20	44,60	14,0	149,30	58,60	50,70	258,60	318,80
(26) преципитат	9,0	34,00	8,20	9,60	51,80	63,90	37,4	90,90	21,90	25,70	138,50	170,80
(27) обесфторенный фосфат	12,0	67,00	8,20	9,10	84,30	103,90	31,7	211,40	25,90	28,70	266,00	328,00
(28) суперфосфат простой (импорт)	32,0	24,00	8,20	7,70	39,90	49,20	28,1	85,40	29,20	27,40	142,00	175,10
(29) Фосфоритная мука	3247,8	9,00	8,20	4,50	21,70	26,70	20,9	43,00	39,20	21,50	103,70	127,90
(30) Калийные	6400,6	8,50	8,20	7,00	23,70	29,20	40,0	21,30	20,50	17,50	59,20	73,50
(31) хлористый калий	3181,6	11,00	8,20	8,30	27,50	33,90	57,5	19,10	14,30	14,40	47,80	58,90
(32) соль калийная смешанная	1049,1	7,00	8,20	7,10	22,30	27,50	40,0	17,50	20,50	17,70	55,70	68,70
(33) сульфат калия	18,6	20,00	8,20	6,00	34,20	42,20	52,2	38,30	15,70	11,50	65,50	80,80
(34) калимагнезия	138,3	10,00	8,20	4,90	23,10	28,50	30,0	33,30	27,30	16,30	76,90	94,80
(35) обогащенный каинит	539,8	11,70	8,20	5,40	25,30	31,20	17,9	65,40	45,80	30,20	141,40	174,30
(36) каинит	1412,5	2,50	8,20	4,60	15,30	18,90	10,0	25,00	82,00	46,00	153,00	188,60
(37) хлоркалий-электролит	60,7	7,00	8,20	9,60	24,80	30,60	41,7	16,80	19,70	23,00	59,50	73,40

Table 2 (Continued):

Удобрения (1)	Фактическая поставка минеральных удобрений, тыс. т физической массы (2)	(3) Затраты на 1 т физической массы, руб					Среднее содержание д. в., % (9)	(10) Затраты на 1 т д. в., руб.				
		цена для сельского хозяйства (4)	наценка организаций Сельхозхимии (5)	расходы на хранение, транспортировку и внесение (6)	итого затрат франко-почва (7)	то же с учетом накладных расходов (23,3%) (8)		цена для сельского хозяйства (4)	наценка организаций Сельхозхимии (5)	расход на хранение, транспортировку и внесение (6)	итого затрат франко-почва (7)	то же с учетом накладных расходов (23,3%) (8)
(38) Сложные — всего	4907,5	66,60	8,20	8,70	83,50	102,90	46.4	143,50	17,70	18,70	179,90	221,80
(39) аммофос	1510,5	92,50	8,20	10,80	111,50	137,50	53,2	173,90	15,40	20,30	209,60	258,40
(40) нитрофос	520,2	69,00	8,20	10,00	87,20	107,50	46,1	149,70	17,80	21,70	189,20	233,30
(41) нитрофоска	1264,8	33,50	8,20	6,40	48,10	59,30	32,0	104,70	25,60	20,00	150,30	185,30
(42) нитроаммофос	531,7	66,80	8,20	8,20	83,20	102,60	45,6	146,50	18,00	18,00	182,50	225,00
(43) нитроаммофоска	1017,6	65,00	8,20	8,00	81,20	100,10	54,0	120,40	15,20	14,80	150,40	185,40
(44) диаммоний фосфат	37,7	112,00	8,20	10,10	130,30	160,70	69,5	161,20	11,80	14,50	187,50	231,20
(45) кристаллин	21,2	130,00	8,20	9,10	147,30	181,60	35,1	370,40	23,40	25,90	419,70	517,50
(46) ЖКУ	3,8	63,00	8,20	5,10	76,30	94,10	44,7	140,90	18,30	11,40	170,60	210,30
(47) Борные удобрения	11,3	32,60	8,20	10,30	51,10	63,00	11,9	273,90	68,90	86,50	429,30	529,30
(48) Минеральные удобрения — всего	25610,3	36,40	8,20	8,20	52,80	65,10	35,3	103,10	23,20	23,20	149,50	184,30

Key:

1. Fertilizers
2. Actual delivery of mineral fertilizers, in thousands of tons of physical weight
3. Expenditures per ton of physical weight, in rubles
4. Price for agriculture
5. Mark-up of Sel'khozkhimiya organizations
6. Expenses for storage, transporting and application
7. Total expenses for application to soil
8. Ibid, taking into account overhead expenses (23.3 percent)
9. Average content of active agent, in %
10. Expenditures per ton of active agent, in rubles
11. Nitrogen fertilizers
12. Ammonium nitrate imported
13. Carbamide
14. Ammonium nitrate imported
15. Ammonia liquor
16. Liquid ammonia
17. Ammonium sulphate
18. Sodium
19. Phosphorus fertilizers
20. Superphosphate, double granulated
21. Superphosphate, simple granulated
22. Superphosphate, simple powdered
23. Boric superphosphate, double granulated
24. Boric superphosphate, simple granulated
25. Ammoniated superphosphate
26. Precipitate
27. Defluorinated phosphate
28. Simple superphosphate (import)
29. Phosphorite meal
30. Potassium fertilizers
31. Potassium chloride
32. Mixed potassium salt
33. Potassium sulphate
34. Potassium-magnesium sulphate fertilizer
35. Enriched kainite
36. Kainite
37. Potassium chloride electrolyte
38. Complex fertilizers -- total
39. Ammophos
40. Nitrophos
41. Nitrophoska
42. Nitroammophos
43. Nitroammophoska
44. Diammonium phosphate
45. Crystallin
46. ZhKU
47. Boric fertilizers
48. Mineral fertilizers -- total

of mineral fertilizer usage. Thus, in the nonchernozem zone and forest district of the UkSSR, each kilogram of active agent of mineral fertilizer must return no less than 2 kilograms of grain, in the forest-steppe regions and in the Trans-Caucasus and Central Asian republics -- 3 kilograms and in the north Caucasus -- 3.5 kilograms. If the actual return is lower than the figures indicated, then the farms sustained losses in their fertilizer usage.

The lowest acceptable level of return from fertilizers in the form of yield (O_n) is determined using the formula (4): $O_n = E_Ц : (C_n - A_{yb})$, where $E_Ц$ represents the expenditures for 1 quintal of active agent in mineral fertilizers (with overhead expenses); C_n represents the cost for 1 quintal of grain or other product at current prices; A_{yb} represents the expenditures for the harvesting, processing and sale of 1 quintal of increase in yield obtained from the use of fertilizers (with overhead expenses). The common ratio signifies the price for 1 quintal of increase in yield less the expenditures for its processing, sale and placing in storage.

In order to determine the cost of the gross increase in yield, use is made of current prices ($Ц$), computed for each crop and for the crop husbandry branch as a whole using the formula (5): $Ц = (C_b + П - Y) : B_n$, where C_b is the production cost for all output (excluding by-products), $П$ represents the profit, Y represents losses from sales and B_n is the gross yield of the crop in initially credited weight and for field crop husbandry -- in a conversion for grain units (including by-products).

The expenditures for fertilizer usage are found using the formula (7): $E = A_{yd} + A_{vH} + A_{yb} + A_p + A_H$, where A_{yd} is the price of the fertilizers and the price mark-up of Sel'skhozkhimiya for delivery to the farm; A_{vH} represents the expenses of the farms (or the payment by Sel'khozkhimiya) for all types of work associated with the use of fertilizers, commencing with unloading in the farm warehouse and ending with application to the soil; A_{yb} is the expenditures for the harvesting and sale of the products and placing them in storage; A_H -- overhead expenses, additional payment for products, additional wages, bonuses and extra charges applied to the production costs for the products and computed overall in percentages of the direct expenditures in field crop husbandry. This same percentage should be employed for the individual crops.

The approximate average expenditures for mineral fertilizers for the RSFSR are furnished in Table 2. They should be established in each oblast based upon the indicators for 2-3 typical farms.

The net income ($Ч_d$) from 1 hectare and from an entire area is computed using the formula (8): $Ч_d = C_n - E$, where C_n is the cost of the products obtained from fertilizers from 1 hectare or from an entire area. The indicator for net income per ruble of expenditure ($Ч_p$) is determined using the formula (9): $Ч_p = (C_n) : E - 1$, or $Ч_d : E$, and the production cost for 1 quintal of increase in yield (C_{bn}) -- using the formula (10): $C_{bn} = E : B_n$.

The computations for the economic effectiveness of fertilizer usage, using the method of proportionate participation, can be carried out for five-year periods and for individual years, for one farm or for a group of kolkhozes and sovkhozes

Table 3

Economic Effectiveness of Mineral Fertilizer Usage for Grain Crops in the RSFSR

Indicator	1966-1970	1971-1975	1976-1980	1976	1977	1978	1979	1980
	Average							
Sowing area, millions of hectares	74.3	75.0	76.7	77.2	78.3	77.1	75.7	75.5
Gross yield, millions of tons	100.5	102.9	113.8	127.1	136.5	136.5	91.7	105.0
Yield, grams per hectare	13.5	13.5	14.8	16.5	13.9	17.7	12.1	13.9
Mineral fertilizers applied, active								
agent total, millions of tons	1.4	2.4	3.4	3.2	3.3	3.5	3.3	3.4
kilograms per hectare	19	32	44	42	42	46	43	45
Proportionate participation of fertilizers in yield, in %	12	13	14	14	14	14	14	14
Increase in yield from fertilizers:								
total, millions of tons	12.1	13.4	15.9	17.8	15.2	19.1	12.8	14.7
for 1 hectare, in quintals	1.6	1.8	2.1	2.3	2.0	2.5	1.7	1.9
Expenses for increase in yield								
total, millions of rubles	382.7	553.7	743.97	740.6	740.4	756.4	675.4	806.7
for 1 hectare, in rubles	5.51	7.38	9.71	9.60	9.46	9.81	8.92	10.66
for 1 quintal, in rubles	3.22	4.10	4.62	4.17	4.73	3.92	5.25	5.61
Cost of additional products								
total, millions of rubles	1024.5	1137.5	1499.9	1074.5	1324.1	1638.1	1194.1	1369.3
1 hectare, in rubles	13.79	15.16	19.55	25.60	17.40	21.42	15.83	17.69
Net income								
total, millions of rubles	641.8	583.8	756.0	1233.9	583.7	881.7	519.5	561.59
for 1 hectare, in rubles	8.64	7.78	9.84	16.00	7.94	11.61	6.91	7.03
per ruble of expenditure, in rubles	1.67	1.05	1.02	1.67	0.79	1.16	0.77	0.70
Yield return from 1 quintal of NPK								
actual	8.4	5.6	4.8	5.5	4.8	5.4	4.0	4.3
normative	5.3	5.1	4.2	4.2	4.2	4.2	4.2	4.2
Actual return compared to norm, in %	158	110	114	130	114	129	95	102

served by an interfarm point, an interfarm detachment or a brigade of the Sel'khozkhimiya Association, or for a rayon, oblast or union republic.

The method for computing the indicators for the economic effectiveness of mineral fertilizers, used for grain crops at kolkhozes and sovkhozes in the Russian Federation, is shown in Table 3. It is apparent from the data cited that the amount of increase in yield, in kind and in a value expression, increased as the fertilizer norms were raised during the five-year periods. The net income from 1 hectare also increased. However, the yield return caused by the use of fertilizers declined. Both the value and in-kind indicators were considerably better during years marked by favorable weather conditions (1976-1978) and worse during unfavorable years (1979 and 1980).

Table 4

Increase in Yield From Fertilizers, With Constant Fertilizer Norm and Proportion in the Yield

Grain Crop Yield With Fertilizer Applications, quintals per hectare	Application Norm for 1 Hectare, active agent, in quintals	Proportionate Participation, in %	Increase in Yield From Fertilizers, quintals per hectare	Yield in the Absence of Fertilizers, quintals per hectare
10	1.0	20	2	8
15	1.0	20	3	12
20	1.0	20	4	16

The authors of the article, based upon their work experience, consider it necessary to point out a number of advantages possessed by the method of proportionate participation of fertilizers, compared to other methods for establishing an increase in yield.

The proportionate method is based upon experimental data with mineral fertilizers, summarized in the "Norms for Determining the Agricultural Requirements for Mineral Fertilizers." The norms were developed with the active participation of leading branch and zonal scientific-research institutes.

The method is simple and easily mastered. It makes it possible, with acceptable accuracy, to compute an increase in yield caused by fertilizers, during favorable and unfavorable years, for various levels of farming culture and taking into account losses and shortfalls caused by various factors. In the process, a proportional change takes place in the entire yield and also in that portion of it obtained as a result of fertilizers and other agricultural production factors.

The proportionate method can be employed for determining the indicators for the economic effectiveness of fertilizers on an annual basis and by periods for a number of years on each farm, for a group of farms, the average for a rayon, oblast or union republic and for the country. Distinct from other methods, it can be used for computing effectiveness for individual crops, groups of crops and for the branches of field crop husbandry and it is valid for the use of mineral fertilizers alone as well as for the combined use of mineral and organic fertilizers.

Table 5

Actual and Computed Proportionate Participation of Fertilizers in an Entire Yield

Indicator	Crop			
	Grains	Sugar Beets	Cotton	Potatoes
Number of production experiments	2750	440	763	63
Mineral fertilizer applied per hectare, in kilograms of active agent	171	406	284	237
Yield for a fertilized area, in quintals per hectare	26.1	35.3	304	169
Proportionate participation, in %				
actual production experiments	25	37	27	29
computed according to norms*	24	34	24	28
Increase from fertilizers, quintals per hectare				
actual in production experiments	6.5	13.1	81	49
computed according to norms	6.3	12.0	73	47
Deviation of computed increase from actual increase, in %	3	8	10	4

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* The proportionate participation is determined for the appropriate fertilizer norm, in accordance with the norms for determining the agricultural requirments for mineral fertilizers and the scale for a change in them.

In order to avoid unimaginative work and mistakes, the proportional participation of fertilizers in the creation of an increase in yield should be differentiated depending upon the type, variety and also the degree of continuous cultivation of the soil.

Some authors maintain [11] that the proportionate participation of fertilizers obtained during experiments should be reduced, since the increase in yield under production conditions is lower than that obtained during tests with fertilizers. Although this is true, it does not apply to proportionate participation for an entire crop and it is not recommended that a correction be introduced for the production conditions. A lower or higher yield of products per hectare is reflected, through proportionate participation, on the amount of increase obtained from fertilizers (see Table 4).

It is apparent from Table 4 that the increases in yield change in the variant which lacks fertilizers when the fertilizer application norm is the same and the yield different. All three cases can be viewed as a manifestation of different production conditions: years that were unfavorable, average or favorable according to weather conditions, different levels of culture for production and for the carrying out of agricultural measures and so forth.

A judgment can be made with regard to the feasibility of using the proportionate method based upon the data obtained from 4,816 production experiments carried out with fertilizers for four of the principal agricultural crops. The experiments were summarized for the 1969-1979 period (see Table 5). The convergence of the actual and computed (according to norms) increases in yield amounted to 3-4 percent for grain crops and potatoes and 8-10 percent for cotton and sugar beets.

Based upon the above, it can be concluded that the method of proportionate participation of fertilizers in an entire yield makes it possible, with a definite degree of accuracy, to determine the amount of increase in yield and other indicators of the economic effectiveness of fertilizers in agricultural production.

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